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DEPARTMENT OF FISH AND GAME

BUTTE CREEK  
SPRING-RUN CHINOOK SALMON, ONCORYHNCHUS TSHAWYTSCHA  
PRE-SPAWN MORTALITY EVALUATION  
2003

By

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Sacramento Valley – Central Sierra Region

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## EXECUTIVE SUMMARY

Pacific Gas and Electric (PG&E) operates the DeSabla Centerville Project (Project) located on Butte Creek near Chico, in Butte County California. The Project operates under Federal Energy Regulatory License 803 (FERC 803), as amended. Butte Creek harbors one of three remaining populations of Central Valley spring-run Chinook salmon (SRCS) (*Oncorhynchus tshawytscha*), listed as threatened under the state and federal endangered species acts. Operation of the Project directly affects flows and water temperatures which impact SRCS in the approximately 11 mile-long holding and spawning reach of Butte Creek. There have been observations of significant numbers of SRCS dieing prior to spawning, which was somewhat systematically documented during 2002.

This study was funded by PG&E, based upon concern for Project impacts to SRCS, particularly during the summer holding period. Based upon a standard salmon census technique, there were approximately 17,294 adult SRCS that migrated to Butte Creek during 2003, of which an estimated 11,231 died prior to spawning, while 6,063 survived to spawn. Pre-spawn mortalities, as confirmed by a California Department of Fish and Game pathologist, were primarily due to large numbers of fish concentrated in limited holding pools, high water temperature, and an outbreak of two pathogens, *Flavobacterium columnare* (columnaris) and the protozoan *Ichthyophthirius multifiliis* (Ich). Maximum daily air temperatures during the last two weeks of July exceeded 37.6°C (100°F) a total of 10 days, as measured at the nearby California Department of Forestry Cohasset Fire Station. Water temperatures in key holding pools reached average daily temperatures as high as 20.9°C (69.7°F) during late July. Pre-spawn mortalities consisted of 62% female at an average fork length (FL) of 823 mm, and 38% male at an average FL of 879 mm. Based upon recoveries of fish previously marked with coded-wire tags, it is estimated that 33% of the mortalities were age-3, and 67% age-4.

The present PG&E hydro-power facilities can be traced back to about 1899 and the Butte County Electric Power and Lighting Company, which modified several existing mining ditches and head dams. The Project diverts water from the West Branch of the Feather River at the Hendricks Head dam near Stirling City which is then combined with Butte Creek water diverted at the Butte Head dam. Power is generated at two sites, the DeSabla Powerhouse located above the SRCS holding

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and spawning area, and the Centerville Powerhouse located in the middle of the approximately 11 mile-long holding and spawning area. Annual diversions from the West Branch of the Feather River average approximately 47,000 acre-feet, and provide approximately 40% of the flows in Butte Creek during the months of July through September, critical to salmon holding and spawning.

Diversions at the PG&E Centerville Head Dam supply water to the Centerville Powerhouse and reduce flows in Butte Creek to a minimum of 40 cfs, during a key period for SRCS, June 1, through September 14, as required by the FERC license. The reach of Butte Creek located between the Centerville Head Dam and the Centerville Powerhouse is approximately 5.5 miles in length and contains a majority of the best and most isolated summer holding habitat for SRCS, but only approximately 18% of the spawning habitat.

Diversions at the Centerville Head Dam which supply water to the Centerville Powerhouse, significantly reduce water temperatures in the reach immediately below the powerhouse due to reduced transit time and shading along the diversion canal. The reduced temperatures below the powerhouse provide additional summer holding habitat that would not otherwise exist, and which is generally utilized by approximately 40% of the SRCS. Additionally, those SRCS which hold in the reach below the powerhouse are able to better utilize the approximately 80% of the spawning habitat located below the powerhouse. While there is some evidence of downstream movement of SRCS from holding areas to spawning areas, the movement appears limited to short distances to access the nearest spawning habitat (Appendix B). There is no evidence of large scale movement from above the powerhouse to below.

Several Project operational modifications to reduce water temperatures have been considered, particularly in the reach between the Centerville Head Dam and the Centerville Powerhouse. During 1992, minimum summer flows were increased to 40 cfs in both normal and dry water years. However, a study evaluating the flow-temperature relationship demonstrated that increases in flow above approximately 20 cfs bring diminishing reductions in temperature in the reach above the powerhouse. Additional flows above the powerhouse, reduce those available through the powerhouse and result in increased temperatures at the powerhouse discharge, to the detriment of fish holding in the reach below.

Based upon estimates of spawning habitat, salmon redd sizes, and two fish per redd, the reach above the Centerville Powerhouse would accommodate approximately 152 – 1,316 spawners at 40 cfs, and 270-2,352 spawners at 130 cfs. The reach below the powerhouse would accommodate 1,262-10,976 spawners at 130 cfs. During the three-year period 2001-2003, it is estimated that 10,887, 7,161, and 1,527 respectively spawned above, while 7,425, 5,737, and 4,536 respectively spawned below. During the three-year period, in spite of pre-spawn mortalities, the spawning habitat above the powerhouse was generally significantly over-utilized and that below, significantly under-utilized.

Several evaluations, including this study, have identified heating of 1.0-2.0°C through the DeSabla Forebay, which serves as a surge reservoir for flows diverted from the West Branch of the Feather River and from Butte Creek at the Butte Head Dam, prior to flows entering the DeSabla Powerhouse. PG&E determined that maintaining flows through the forebay above 80-100 cfs helped to reduce heating, although during July 1-15, 2003 with average flows of 87 cfs, the average temperature increase was 1.37°C. Additionally, there is significant heating in the reach of Butte Creek between the Centerville Head Dam and the Centerville Powerhouse corresponding to the relatively high air temperatures. Temperatures of diversions from the West Branch are generally

cooler than those in Butte Creek but are dependent upon management of releases from the two storage reservoirs, Round Valley and Philbrook. PG&E canal maintenance may also affect temperatures in Butte Creek when there are significant flow changes during key salmon holding and spawning periods.

While the existing operation of the Project as required by FERC License 803 (as amended) seems to provide a net benefit to salmon holding and spawning, this evaluation has identified several potential modifications that might contribute to reduced water temperatures. These include, 1) modifications to bypass the DeSabla Forebay ; 2) development of a predictive model for temperature management of flows from the West Branch; 3) alteration of maintenance practices to avoid flow changes during critical salmon holding and spawning periods; and 4) investigation of potential alternate conveyance and discharge points along the Centerville Canal which supplies water to the Centerville Powerhouse.

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## INTRODUCTION

This report is prepared under a grant from Pacific Gas and Electric Company (PG&E) to assess pre-spawning mortalities among spring-run Chinook salmon (SRCS), *Oncorhynchus tshawytscha*, in Butte Creek. Specifically, the grant required the following:

- Develop an accurate estimate of pre-spawning mortalities among Butte Creek SRCS,
- Assess causal relationship of SRCS pre-spawning mortalities with operation of the PG&E DeSabla Centerville Hydro-power Project.
- Recover coded-wire tags (CWT) from previously marked Butte Creek SRCS.
- Monitor and document holding distribution of Butte Creek SRCS.

### Salmon in Butte Creek

Butte Creek is one of only three Central Valley streams that continue to harbor a sustaining population of the threatened SRCS. The other two are nearby Deer and Mill creeks, located to the north in Tehama County. SRCS were listed as threatened under the California Endangered Species Act (CESA) and federal Endangered Species Act (ESA) during 1999. The listings were due to significant declines beginning in the late 1960's. The federal Central Valley Project Improvement Act, Public Law 102-575, 1991 (CVPIA) baseline period average for the years 1967 through 1991, was 364 adults with a high of 1,300 during 1988 and 1989, and low of 10 in 1979 (CDFG 1998). Significant restoration actions were initiated in the early 1990's under the CVPIA and the state Safe, Clean, Reliable Water Supply Act (Proposition 204, 1996). Since 1991 the Butte Creek SRCS population has averaged 5,254 with a high of 20,212 during 1998 and low of 474 during 1994.

There are four distinct runs of Chinook salmon in the Central Valley of California, identified largely by the time of adult entry into fresh water. They include the fall-, late fall-, winter- and spring-run. Although all belong to a single species, Chinook salmon (*Oncorhynchus tshawytscha*), the four runs are often described as "races" based upon geographic separation and reduced gene flow (CDFG 1998). Fall-, late fall-, and winter-run spawn shortly after entering fresh water and are largely confined to lower elevation rivers and streams within the Central Valley. Spring-run salmon have a unique life history in which adults enter fresh water in the late winter and spring, spending up to eight months in fresh water prior to spawning. This extended fresh water residency requires that adults have access to suitable habitat characterized by deep, cool, highly oxygenated pools to survive high summer temperatures in the Central Valley. While historically, SRCS populations were found in most of the eastern tributaries of the Sacramento and San Joaquin Rivers, large dams and water development eliminated access to all but the few remaining tributaries such Deer, Mill, and Butte creeks (CDFG, 1998).

The first written record of salmon in Butte Creek was by G. H Clark in 1929 (Clark, 1929). Clark in referring to Butte Creek stated "... has been known as a very fine salmon stream and as a good spawning ground". The first somewhat systematic effort to generate a Butte Creek SRCS population estimate was done in 1954 (Table 1) (CDFG, 1998). However, inconsistent methods of evaluation used during the intervening years have made it difficult to assess population trends.

Table 1. Butte Creek SRCS spawning escapement estimates for the period 1954 through 2003.

Year	Run Size						
1954	830	1969	830	1984	23	1999	3679*
1955	400	1970	285	1985	254	2000	4118*
1956	3000	1971	470	1986	1371	2001	9605* (22744)
1957	2195	1972	150	1987	14	2002	8785*(12597)
1958	1100	1973	300	1988	1300	2003	4398* (6063)
1959	500	1974	150	1989	1300*		
1960	8700	1975	650	1990	100*		
1961	3100	1976	46	1991	100*		
1962	1750	1977	100	1992	730*		
1963	6100	1978	128	1993	650*		
1964	600	1979	10	1994	474*		
1965	1000	1980	226	1995	7500*		
1966	80	1981	250	1996	1413*		
1967	180	1982	534	1997	635*		
1968	280	1983	50	1998	20212*		

\* Surveys prior to 1989 used various methods of varying precision. Snorkel surveys used since 1989 are thought to significantly underestimate actual population size and are used as an index. Spawning survey results for 2001- 2003 are shown in parenthesis. Neither snorkel survey nor spawning survey estimates include pre-spawn mortalities.

The SRCS over-summer holding reach of Butte Creek is approximately 11 miles in length, extending from the Quartz Bowl Pool downstream to the Centerville Covered Bridge (Figures 1 and 2). Flows in this reach are controlled by PG&E for power generation at the DeSabla and Centerville powerhouses. Within the 11 mile SRCS holding/spawning reach, the area with the most deep holding pools and which is most isolated is located in the uppermost 3 miles between the Quartz Bowl and Pool 4, while the majority of the spawning gravel is located in the 5 miles below the Centerville Powerhouse (Figures 1 and 2, Appendix C, Figures 1-5). Butte Creek is unique among the remaining SRCS streams in that all of the holding and spawning area is below 285 m (931 ft), while Deer and Mill Creek SRCS all hold and spawn in areas above that elevation. Due to the lower elevation habitat, Butte Creek has historically exhibited water temperatures above the ideal temperatures for holding and spawning Chinook salmon (Ward et al., 2001, 2002, 2003). With the recent increased populations of Butte Creek SRCS, there have been reports and observations of significant mortalities during the summer holding period prior to spawning. This was partially documented during 2002 when there were an estimated 3,431 pre-spawning mortalities (Ward et al., 2003).

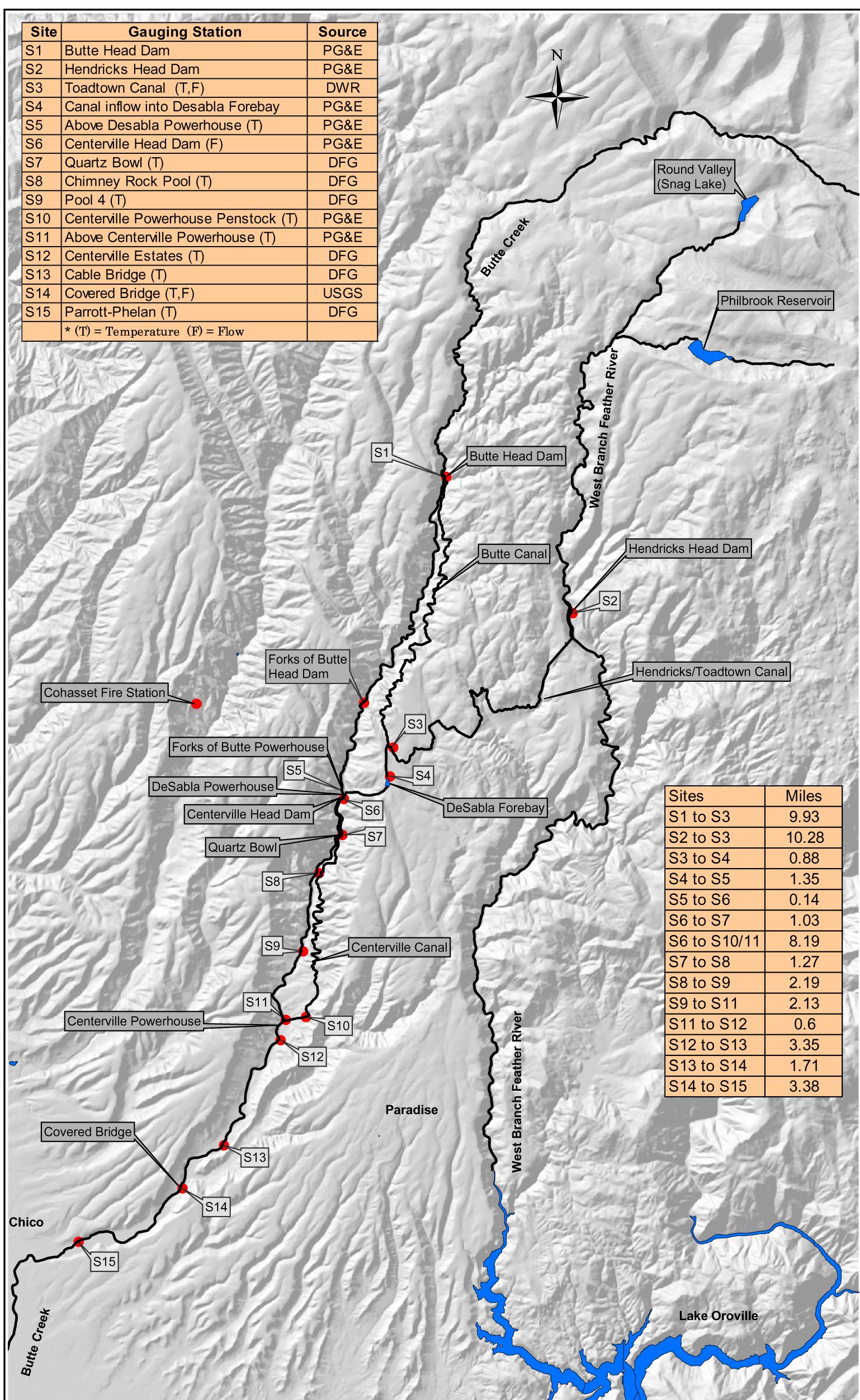


Figure 1. Map showing reaches of Butte Creek and West Branch of the Feather River controlled by Pacific Gas and Electric Company affecting Butte Creek spring-run Chinook salmon, including temperature and flow gage locations and distances.

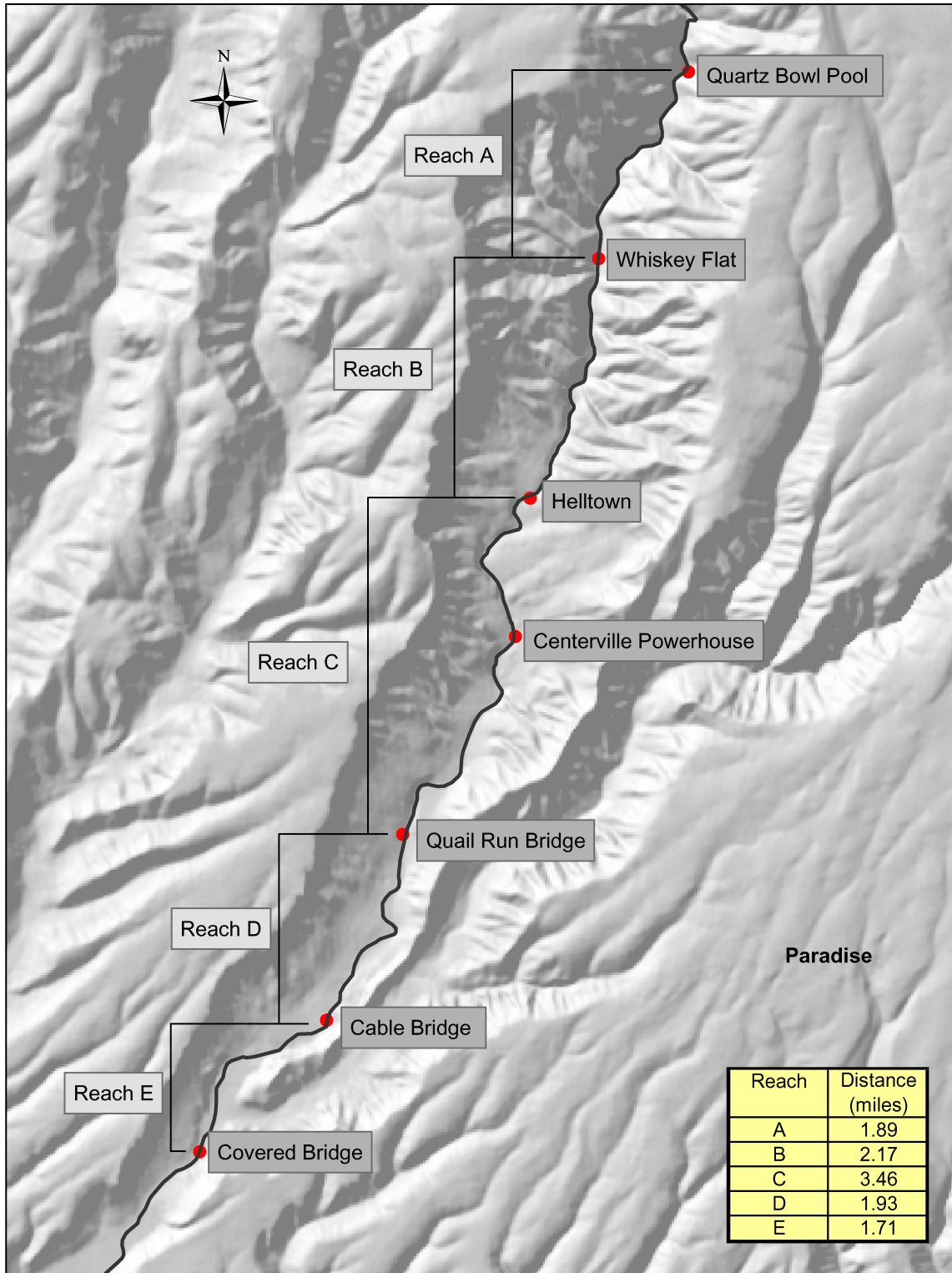


Figure 2. Map of Butte Creek from Quartz Bowl Pool to Covered Bridge showing spring-run Chinook salmon holding and spawning reaches and distances.

## Hydro-Power in Butte Creek

### Watershed and Historical Perspective

The headwaters of Butte Creek originate in the Lassen National Forest, within the Jonesville Basin at an elevation of approximately 2,137 m (7,000 ft). The upper watershed area is approximately 385 km<sup>2</sup> (148 mi<sup>2</sup>) and has an unimpaired average annual yield of approximately 300,000 cubic decameters (dam<sup>3</sup>) (243,000 acre-feet) (Hillaire, 1993). Additionally, there is approximately 58,000 dam<sup>3</sup> (47,000 acre-feet) of water diverted into Butte Creek by the PG&E DeSabla Centerville Project from the West Branch of the Feather River. For the period of record (1931-1993), the average volume imported for the months of June through September was June 5,640 dam<sup>3</sup> (4,569 ac-ft), July 4,720 dam<sup>3</sup> (3,823 ac-ft), August 3,954 dam<sup>3</sup> (3,203 ac-ft), and September 3,205 dam<sup>3</sup> (2,596 ac-ft). The imported flows as a percentage of the total flows in Butte Creek were approximately by month, June-28%, July-39%, August-40%, and September-37%.

PG&E operates the DeSabla-Centerville Project under Federal Energy Regulatory Commission license number 803 (FERC 803, 1980) which allows diversion of flows from Butte Creek at two points, the Butte and Centerville head dams (Figure 1). Additionally, PG&E diverts flows from the West Branch of the Feather River at the Hendricks Head Dam which are commingled with Butte Creek flows at the DeSabla Forebay. The physical aspects of the present PG&E DeSabla – Centerville Project can be traced back to about 1899 and the Butte County Electric Power and Lighting Company which modified several existing mining ditches and head dams for electric power generation (CSUC, 1998). By 1908 all of the components of the present day project had been incorporated into the system including the Butte and Centerville head dams, Butte and Centerville canals, DeSabla and Centerville powerhouses, Hendricks Head Dam, Hendricks and Toadtown canals, and the DeSabla Forebay. The Centerville Powerhouse is located approximately in the middle of the 11 mile SRCS holding and spawning reach.

FERC 803, as amended March 15, 1984, required that PG&E release a minimum of 10 cfs below the Centerville Head Dam during the period May 16 through September 14. This requirement was further conditioned to include additional flow releases up to 40 cfs to maintain temperatures less than 20° C in salmon holding pools from July 1 to September 14 during normal water years (FERC 803, 1984). The flow requirements were further amended January 31, 1992 and required that PG&E release a minimum of 40 cfs below the Centerville Head Dam during the period June 1 through September 14, in both normal and dry years. The rest of the flow is diverted into the Centerville Canal for power generation at the Centerville Powerhouse (FERC 803, 1984). The full natural flow of Butte Creek, including that diverted from the West Branch of the Feather River, is then within Butte Creek below the Centerville Powerhouse.

### Project Impacts to Salmon

Concern for the effects of the PG&E DeSabla Centerville Project on survival of SRCS date back to at least 1940 and were first documented in 1960 (Salo, 1960). It was estimated that greater than 1,000-2,000 adult SRCS died prior to spawning in the reach above the Centerville Powerhouse due to low flows (less than 10 cfs) and warm water temperatures (Salo, 1960; CDFG, 1998). Although there was no positive identification, it was inferred that the likely cause of the mortality was columnaris (*Flavobacterium columnare*) often found with high water temperatures and large numbers of fish. Also, it was noted that 100-200 salmon were observed to be in good condition below the Centerville Powerhouse discharge. Additionally, it was estimated that the reach of Butte Creek above the

Centerville Powerhouse would not support more than 250 salmon at any flow. The recommendation was made that a barrier be constructed in the creek above the Centerville Powerhouse. CDFG constructed a removable barrier immediately above the Centerville Powerhouse in the late 1960's, which was inconsistently installed and operated until the early 1980's, when it was removed.

### **FERC 803 Project License, 1980**

Prior to the FERC 803 Project License issued June 12, 1980, PG&E flow releases in the reach above the Centerville Powerhouse were often less than 10 cfs. CDFG recommended a minimum flow of 20 cfs as a condition of the license. However, due to concerns by PG&E, Article 39 required that PG&E develop recommendations for minimum flow releases within three years of the date of the license. The FERC 803 License amendment of March 15, 1984 required a minimum of 10 cfs during the period May 16 through September 14, plus additional flows up to 40 cfs as necessary to maintain temperatures less than 20° C. PG&E subsequently initiated a study to evaluate effectiveness of the additional flows and to develop a model to achieve temperature objectives (Kimmerer and Carpenter, 1989). The interim temperature objective was that water temperatures at Pool 4 should not exceed 20° C for more than 4 hours per day. It should be noted that the Pool 4 referenced in the study is approximately 0.92 km (0.57 mi.) above Pool 4 as discussed in this report (Figures 1). The evaluation concluded that flow releases up to 20 cfs provided the greatest temperature reduction per unit flow. Increasing flow from 20 to 30 cfs resulted in an average temperature decrease of 0.74° C, while increasing flow from 30 to 40 cfs resulted in an average decrease of 0.37° C.

### **PG&E Centerville Powerhouse Replacement, 1991**

On October 15, 1991, PG&E filed a request with FERC to replace the existing Centerville Powerhouse. CDFG recommended that PG&E be required to release a temperature based flow as measured in Butte Creek at the Helltown Bridge (Figure 1 and 2). If temperatures as measured at the Helltown Bridge were greater than 19° C during the period May 16 to September 14, or greater than 16° C during the period September 15 to May 14, PG&E would release additional flows up to the entire inflow as measured at the Butte Head Dam. This flow would only be the natural flow of Butte Creek and not include that diverted from the West Branch of the Feather River. FERC subsequently concluded, with concurrence from CDFG, that the small volume of increased cooler water would be offset by the larger volume of warmer water from the DeSabla Forebay, and have little if any effect on reducing temperature below the Centerville Head Dam. The final FERC order amending the license dated January 31, 1992, required that PG&E release 40 cfs from June 1 through September 14, in all water-year types. Article 402 of the amendment also required that PG&E develop and implement within two years, a monitoring plan to assess stream flow and temperature. That assessment was completed in 1993 with several key findings and recommendations (PG&E, 1993):

- Increased diversions from the West Branch of the Feather River would not lower temperatures in the Hendricks Toadtown Canal but would reduce residence time and heating in the DeSabla Forebay which would slightly reduce temperatures at the Centerville Head Dam.
- Decreased diversion of Butte Creek into the Butte Canal would increase temperatures at the Centerville Head Dam by: 1) increasing residence time in DeSabla Forebay, and 2) increasing the flow in the natural channel of Butte Creek which warms more quickly than flows in the Butte Canal.

- Eliminating DeSabla Forebay to reduce retention time was not recommended because of operational constraints associated with the DeSabla Powerhouse. Increased diversions reduce residence time in DeSabla Forebay and provide the coolest possible temperature at the Centerville Head Dam.

CDFG responded to the report by suggesting further assessment of: 1) flow releases from Round Valley and Philbrook reservoirs to identify periods where it was possible to reduce temperatures in Butte Creek; 2) impacts of increased diversions from the West Branch of the Feather River at the Hendricks Head Dam upon downstream users and aquatic habitat; 3) options for conveying water around or through the DeSabla Forebay to reduce residence time and resultant heating. Additionally, it was recommended that minimum flows below the Centerville Head Dam be maintained at 40 cfs until after SRCS emergence to avoid dewatering redds (Broddrick, 1994). FERC subsequently concluded in the order approving the water temperature study report, August 21, 1997, that changes to the DeSabla Forebay would reduce operational flexibility. However, it was also stated that if cool water temperatures below the Centerville Head Dam were more important than maintaining stocked trout in the Forebay, some benefit in lowering temperatures could be achieved (PG&E, 1998). FERC also ordered the following:

- Within six months of issuance of the order, PG&E will develop a plan to identify water usage and alternative sources of water for users downstream of Hendricks Head Dam.
- Discharges from Round Valley reservoir shall be limited to the minimum flow whenever the average daily temperature of the discharge exceeds 17°C to the extent possible under the 1983 Agreement with CDFG.
- Discharges from Philbrook reservoir shall be limited to minimum flow whenever the average daily temperature of the discharge exceeds 18°C to the extent possible under the 1983 Agreement with CDFG.

PG&E completed evaluation of water uses and alternative sources of water below the Hendricks Head Dam as contained in the status report dated December 3, 1998 (PG&E, 1998). Four alternatives were developed, although to date there has not been a recommendation or action to implement any of the four. Increased diversions from the West Branch at the Hendricks Head Dam are still administered under dry water year provisions of the FERC 803 order amending revised Exhibit S, March 15, 1984. Dry water year provisions allow flows released below Hendricks Head Dam to be reduced from 15 cfs to 7 cfs (FERC 803, 1984). The 1983 Agreement with CDFG included a requirement to maintain water in Round Valley reservoir at an elevation for the protection of goose nesting platforms (PG&E, 1983). CDFG agreed to eliminate the requirement, based upon temperature considerations in Butte Creek, and PG&E agreed to install similar nesting platforms at another site (Villa, 1999). Additionally, requirements in the 1983 agreement for operation of Philbrook Reservoir do not appear to constrain management of the reservoir to benefit temperatures in Butte Creek. Thus, if alternatives to minimize heating in the Forebay could be shown to benefit SRCS, such benefits would likely outweigh any detrimental impacts to the trout fishery.

### **PG&E Annual Operations Plan, 1999-2003**

PG&E has since 1999 developed and implemented an annual DeSabla-Centerville Project reservoir operating plan (PG&E, 1999, 2000, 2001, 2002, 2003). The basic objective was to manage Round Valley and Philbrook reservoir releases to maintain temperatures at the Hendricks Head Dam diversion at 16°C or less through the first week in September and 15°C or less thereafter. Additionally, flows into the DeSabla Forebay were to be managed to minimize residence time and eventual heating through the Forebay. PG&E also was to monitor temperatures at the DeSabla Powerhouse discharge and consult

with the resource agencies when temperatures exceeded 16°C. Temperature monitoring stations were installed at various locations to allow assessment and recommendations for future modifications to the operating plan. Temperatures at the Hendricks Head Dam during the period July 1 through September 15 exceeded the 16°C criteria a total of 25 days during the five-year evaluation period, including a total of 18 days during 2002. Additionally for the same period, temperatures at the DeSabla Powerhouse discharge exceeded the 16°C criteria a total of 151 days during four years of record (1999-2002), including a total of 56 days during 2002 (PG&E, 2003b). Temperature increases through the DeSabla Forebay for the period averaged 1.4°C during 2002, 1.2°C during 2001 and 2000, and 1.1°C during 1999 (PG&E, 2000b, 2001b, 2002b).

## MATERIALS AND METHODS

### Adult Escapement

CDFG calculates an adult SRCS escapement estimate each summer by conducting a swimming-snorkel survey. Adults SRCS are counted while holding prior to spawning. On Butte Creek, the swimming-snorkel survey extends from the Quartz Bowl Pool to the Covered Bridge (Figure 1 and 2). Each pool is observed only once by each surveyor, with each of the individual independent estimates recorded. If subsequent analysis of the entire data set reveals significant outliers, these are excluded from the calculation of the population estimate. In such instances, the average for the pool reflects only the remaining recorded observations. Individual estimates are then averaged with the annual total escapement estimate calculated by summing the averages for all survey reaches.

### Adult Pre-spawning Mortality Survey

Since all Pacific salmon die after spawning, a standard technique employed in California for estimating population size is the carcass (mark-recapture) survey. This technique employs a physical count of all carcasses during the entire period and develops an expansion factor for carcasses not encountered during the physical count. A sub-sample of the freshest carcasses encountered is externally marked and returned to the water near the spot encountered. All other carcasses are tallied and chopped in half to avoid being counted more than once. During subsequent surveys, the proportion of previously marked carcasses encountered is used to develop an expansion factor to account for carcasses that went unseen. This methodology requires a short duration between surveys, in general no longer than weekly.

A survey to identify pre-spawning mortalities was conducted during the period June 19, until the onset of spawning on September 18, 2003. The survey extended from the Quartz Bowl Pool to the Covered Bridge (Figure 1 and 2, Appendix C, Figures 1-5). The approximately 17.7 km (11 mi.) long stream section was divided into five reaches with each reach surveyed weekly. Two to four crew members walked downstream covering both sides of the creek. All carcasses were examined for an adipose fin-clip, and then chopped in half to avoid counting during subsequent trips. Carcasses classified as fresh (clear eye, firm flesh, red gills) were sexed and measured to the nearest mm fork length (FL). Heads were removed from adipose fin-clipped carcasses and returned to the office for recovery of the coded-wire tag (CWT).

The estimation method employed utilized the modified Schaefer Model (Schaefer 1951) as follows:

$$E = N_{ij} = R_{ij}(T_i C_j / R_i R_j) - T_i$$

Where:

E = Total run size

$N_{ij}$  = Population size in tagging period i recovery period j,

$R_{ij}$  = number of carcasses tagged in the ith tagging period and recaptured in the jth recovery period,

$T_i$  = number of carcasses tagged in the ith tagging period,

$C_j$  = number of carcasses recovered and examined in the jth recovery period,

$R_i$  = total recaptures of carcasses tagged in the ith tagging period, and

$R_j$  = total recaptures of tagged carcasses in the jth recovery period.

## Water Temperature

Onset, model WTA032, temperature data loggers calibrated to  $\pm 0.2$  ° Celsius (C) set for 1-hour interval recordings were deployed in pools at five sites within the SRCS spawning habitat (Figure 1). Each data logger was placed in a 2in x 6in long galvanized steel pipe and suspended by ¼" steel cable.

## Site Mapping

Site maps and distance were developed utilizing a Garmin GPSmap 76S, Garmin Map Source Topo 3.02, ArcView 8.1 software and spatial data from California Department of Fish and Game Information and Technology Branch projected in California Teal Albers, NAD 27.

## RESULTS AND DISCUSSION

### RESULTS

#### Pre-spawn Mortalities

During the entire pre-spawn sampling period from June 19, through September 18, 2003 there were a total of 5,556 carcasses encountered with an estimated total pre-spawn mortality of 11,231 (Table 2). Mortalities were the result of high water temperatures and an outbreak of two pathogens, *Flavobacterium columnare* (columnaris) and the protozoan *Ichthyophthirius multifiliis* (Ich) (Veek, 2003). The subsequent spawning survey from September 23, through October 30, 2003 encountered a total of 3,721 carcasses with an estimated spawning population of 6,063. The previous swimming-snorkel survey conducted August 18-27, 2003 resulted in an estimate of 4,398 fish surviving to spawn. A less rigorous evaluation of pre-spawning mortalities was conducted during 2002, with each reach examined on a bi-weekly basis and all carcasses counted (Table 3). Due to limited funding, no attempt was made to develop an expansion factor for the pre-spawn survey. A total of 1,699 carcasses was counted during the period beginning June 26, 2002 and ending at the onset of spawning on September 19, 2002. It was estimated that there were a minimum of 3,431 pre-spawning mortalities based upon the expansion factor developed for the subsequent 2002 spawning survey (Ward et al., 2003). The 2002 pre-spawn mortalities were also the result of high water temperatures and outbreaks of columnaris and Ich (Maret, 2002).

Table 2. Summary of Butte Creek SRCS pre-spawn mortalities during period June 19, 2003 through September 18, 2003.

Week	Date	Total Carcasses Encountered					Schafer Model Expanded Total	
		Reach						
		A	B	C	D	E		
1*	6/19	-	-	9	5	1	15	
2*	6/24	0	1	-	-	-		
	6/26	-	-	2	1	0	4	
3*	7/1	1	3	-	-	-		
	7/3	-	-	1	1	1	7	
4*	7/8	3	2	-	-	-		
	7/10	-	-	3	0	3	11	
5*	7/15	1	1	-	-	-		
	7/17	-	-	3	0	0	5	
6*	7/22	1	1	-	-	-		
	7/24	-	-	19	2	4	27	
7	7/29	25	114	-	-	-		
	7/31	-	-	146	45	16	346	
8	8/5	171	279	-	-	-		
	8/7	-	-	205	40	9	704	
9	8/12-13	1,077	599	-	-	-		
	8/14	-	-	385	28	14	2,103	
10	8/18-20	1,139	562	-	-	-		
	8/21	-	-	133	13	3	1,850	
11	8/26	83	92	-	-	-		
	8/28	-	-	222	6	3	406	
12	9/2	13	8	-	-	-		
	9/4	-	-	9	6	1	37	
13*	9/9	7	5	-	-	-		
	9/11	-	-	11	2	0	25	
14*	9/16	5	4	-	-	-		
	9/18	-	-	5	2	0	16	
1-14	TOTAL	2,501	1,654	1128	141	54	5,556	
							11,231	

\* Note: No expansion factor due to low number of carcasses and low mark/recovery.

Table 3. Summary of Butte Creek SRCS pre-spawn mortalities during period June 22, 2002 through September 20, 2002.

Week	Date	Total Carcasses Encountered					Weekly Total	
		Reach						
		A	B	C	D	E		
1	6/26	4	3	-	-	-	7	
2	7/3	-	-	1	0	0	1	
3	7/10	4	5	-	-	-	9	
4	7/17	-	-	18	-	-		
	7/19	-	-	42	19	13	92	
5	7/24	67	167	-	-	-	234	
6	7/31	-	-	99	28	2	129	
7	8/9	528	103	-	-	-	631	
8	8/16	-	-	19	9	0	28	
9	8/21	340	96	-	-	-	436	
10	8/28	-	-	10	5	0	15	
11	9/3	48	10	-	-	-		
	9/5	-	-	3	2	0	63	
12	9/10	17	5	-	-	-		
	9/12	-	-	2	0	1	25	
13	9/17	23	5	-	-	-		
	9/19	-	-	0	1	0	29	
1-13	TOTALS	1,031	394	194	64	16	1,699	
		Expanded Estimate of Total Pre-spawn Mortality*					3,431	

\* Expansion factor of 2.02 applied based upon Schafer Model population estimate of fish that survived to spawn during 2002 (Ward et al. 2003).

### Sex and Age Composition

There was a total of 964 carcasses measured and identified by sex during this survey, of which 62% were female and 38% male; this compares to 65% female and 35% female during 2002 (Table 4). The average lengths of both females and male during this survey were significantly larger than observed during 2002 (Appendix A, Figures 1-6). Based upon recoveries of CWT's (Table 5) adjusted for release group size, it is estimated that approximately 33% of the population was age-3 and 67% age-4. This estimate is supported by the significantly larger average lengths.

Table 4. Fork lengths of subsample of Butte Creek SRCS pre-spawn mortalities during 2002 and 2003.

Year	Female					Male				
	Carcasses		FL (MM)			Carcasses		FL (MM)		
	Total	Percent	Max	Min	Mean	Total	Percent	Max	Min	Mean
2003	596	62%	961	473	823	368	38%	1110	452	879
2002	393	65%	931	514	725	213	35%	1048	400	757

Table 5. Summary of coded-wire tags recovered from Butte Creek SRCS pre-spawn mortalities during 2003.

Age 3 Brood Year 2000				Age 4 Brood Year 1999			
Recovery Date	Tag Code	Sex	Fork Length	Recovery Date	Tag Code	Sex	Fork Length
8/5/2003	06-01-00-02-02	F	743	7/31/2003	06-01-12-03-10	F	793
8/7/2003	06-01-12-04-02	F	784	8/12/2003	06-01-12-03-09	M	831
8/12/2003	06-01-12-04-05	M	733	8/12/2003	06-01-12-03-10	F	892
8/12/2003	06-01-12-04-06	F	667	8/12/2003	06-01-12-03-13	F	797
8/12/2003	06-01-12-04-07	F	702	8/13/2003	06-01-12-03-09	F	854
8/13/2003	06-01-00-02-02	F	725	8/13/2003	06-01-12-03-09	M	885
8/13/2003	06-01-12-04-05	F	690	8/18/2003	06-01-12-03-12	F	907
8/13/2003	06-01-12-04-06	M	755	8/18/2003	06-01-12-03-12	F	732
8/13/2003	06-01-12-04-08	F	738	8/28/2003	06-01-12-03-09	M	793
8/18/2003	06-01-12-04-06	M	665	9/2/2003	06-01-12-03-10	F	847
8/21/2003	06-01-12-04-04	F	626				
8/26/2003	06-01-12-04-03	F	712				
8/28/2003	06-01-00-02-01	M	755				
8/28/2003	06-01-12-04-06	F	698				
Release Group Size – 166,570				Release Group Size – 58,584			

### Holding and Spawning Distribution

Butte Creek SRCS holding and spawning distribution has been somewhat systematically recorded beginning with the first spawning carcass survey in 2001 (Table 6, Appendix B, Figures 1-6). Systematic analyses of pre-spawning mortality distribution were not initiated until 2003. For the purposes of providing a comparative basis for holding, pre-spawn mortality and spawning, the swimming-snorkel estimate for holding was adjusted to reflect the total carcass estimate for the combined prespawn mortality and spawning. Previous evaluations have demonstrated that the swimming-snorkel survey methodology significantly underestimates the actual population (Shardlow et al., 1987; Ward et al., 2003). The adjusted holding estimate was based upon the combined carcass

estimate (pre-spawn and spawn) allocated by the percentages observed in each reach/subreach during the swimming-snorkel survey. During the 3-year period, approximately 60% of the fish counted held above the Centerville Powerhouse and 40% below, while approximately 47% of the fish spawned above the powerhouse and 53% below. The limited pre-spawn mortality survey of 2002 and the more rigorous survey of 2003, indicate that approximately 90% of the mortalities occurred above the powerhouse. Examination of distribution by subreach suggests that during 2001 approximately 14% of the fish holding above the powerhouse subsequently spawned below (Table 6, Appendix B, Figures 1-6). During 2002, adjusting for estimated prespawn mortalities, there was little movement. During 2003, it appears that a significant number of fish originally holding below the powerhouse moved to spawn above.

Table 6. Summary of Butte Creek SRCS distribution by reach, and above and below PG&E Centerville Powerhouse for snorkel, pre-spawn, and spawn survey during 2001-2003.

Year 2003							
Reach	Snorkel Survey			Pre-Spawn Survey		Spawn Survey	
	Actual	Estimated	Percent	Actual	Percent	Actual	Percent
A	1421	5584	32.3%	5056	45.0%	160	2.6%
B	671	2637	15.2%	3481	31.0%	635	10.5%
C1-5	82	322	1.9%	1578	14.0%	732	12.1%
C6-11	2097	8240	47.6%	718	6.4%	2536	41.8%
D	120	472	2.7%	305	2.7%	1664	27.5%
E	10	39	0.2%	93	0.8%	336	5.5%
Total	4401	17294	100%	11231	100%	6063	100%
Total Above Powerhouse	2174	8543	49.4%	10115	90%	1527	25.2%
Total Below Powerhouse	2227	8751	50.6%	1116	10%	4536	74.8%

Year 2002							
Reach	Snorkel Survey			Pre-Spawn Survey		Spawn Survey	
	Actual	Estimated	Percent	Actual	Percent	Actual	Percent
A	5284	3607	22.1%	2077	60.5%	1530	11.9%
B	1101	4614	28.2%	841	24.5%	3773	29.3%
C1-5	280	2021	12.4%	164	4.8%	1857	14.4%
C6-11	2053	3824	23.4%	232	6.8%	3592	27.9%
D	65	2003	12.3%	86	2.5%	1917	14.9%
E	2	259	1.6%	31	0.9%	228	1.8%
Total	8785	16328	100%	3431	100%	12897	100%
Total Above Powerhouse	6665	10242	62.7%	3082	90%	7161	55.5%
Total Below Powerhouse	2120	6086	37.3%	349	10%	5737	44.5%

Year- 2001							
Reach	Snorkel Survey			Pre-Spawn Survey		Spawn Survey	
	Actual	Estimated	Percent	Actual	Percent	Actual	Percent
A	4598	8762	47.8%	ns	ns	2834	15.5%
B	1643	3130	17.1%	ns	ns	5433	29.7%
C1-5	376	716	3.9%	ns	ns	2620	14.3%
C6-11	2141	4079	22.3%	ns	ns	2809	15.3%
D	685	1305	7.1%	ns	ns	3504	19.1%
E	168	320	1.8%	ns	ns	1112	6.1%
Total	9611	18312	100%	193*	ns	18312	100%
Total Above Powerhouse	6617	12608	68.8%	ns	ns	10887	59.5%
Total Below Powerhouse	2994	5704	31.2%	ns	ns	7425	40.5%

\* Sporadic surveys conducted beginning week of June 14, through September 6.

Based upon the recent evaluation of spawning habitat (Gard, 2003), it is estimated that with the current average flows of 40 cfs above and 130 cfs below the Centerville Powerhouse there is approximately 15,145 sq. ft. of useable spawning gravel above and 126,237 sq. ft. below. If flows above the powerhouse were increased to the full 130 cfs, the total useable spawning gravel would be approximately 27,043 sq. ft. Thus, at maximum potential flow, approximately 18% of useable spawning gravel is located above the powerhouse and 82% below. Measurements of Chinook salmon redd sizes (Healey, 1991) vary from approximately 23 sq. ft. to over 200 sq. ft., with an average of approximately 80 sq. ft. Recent measurement of SRCS redds in Mill Creek suggest an average size of approximately 104 sq. ft. (C. Harvey, Pers. Com.). Based upon the minimum and maximum redd size (Table 7) and assuming two fish per redd, the reach of Butte Creek above the Centerville Powerhouse would support an estimated 152-1,316 spawners at 40 cfs, and 270-2,352 spawners at 130 cfs. The reach below the powerhouse would support an estimated 1,262-10,976 spawners at 130 cfs. During the three-year period 2001-2003, it was estimated that 10,887, 7,161, and 1,527 fish respectively spawned above the powerhouse at the required minimum release flows of 40 cfs (Table 6). During the same period, there were 7,425, 5,737, and 4,536 spawning respectively in the reach below the powerhouse at the average flow of approximately 130 cfs. Thus, in each of the years even with the high pre-spawn mortality, spawners in the reach above the powerhouse significantly exceeded the capacity and underutilized that below the powerhouse.

Table 7. Estimated potential number of redds and spawners in Butte Creek for various redd sizes.

Flow		Redd Size							
		23 sq. ft.		80 sq. ft.		104 sq. ft.		200 sq. ft.	
		No. redds	No. fish*	No. redds	No. fish*	No. redds	No. fish*	No. redds	No. fish*
Above Powerhouse	40 cfs	658	1316	189	378	146	292	76	152
	130 cfs	1176	2352	338	676	260	520	135	270
Below Powerhouse	130 cfs	5488	10976	1578	3156	1214	2428	631	1262
Total	130 cfs	6664	13328	1916	3832	1474	2948	4598	1532

\* Assumes 2 fish per redd.

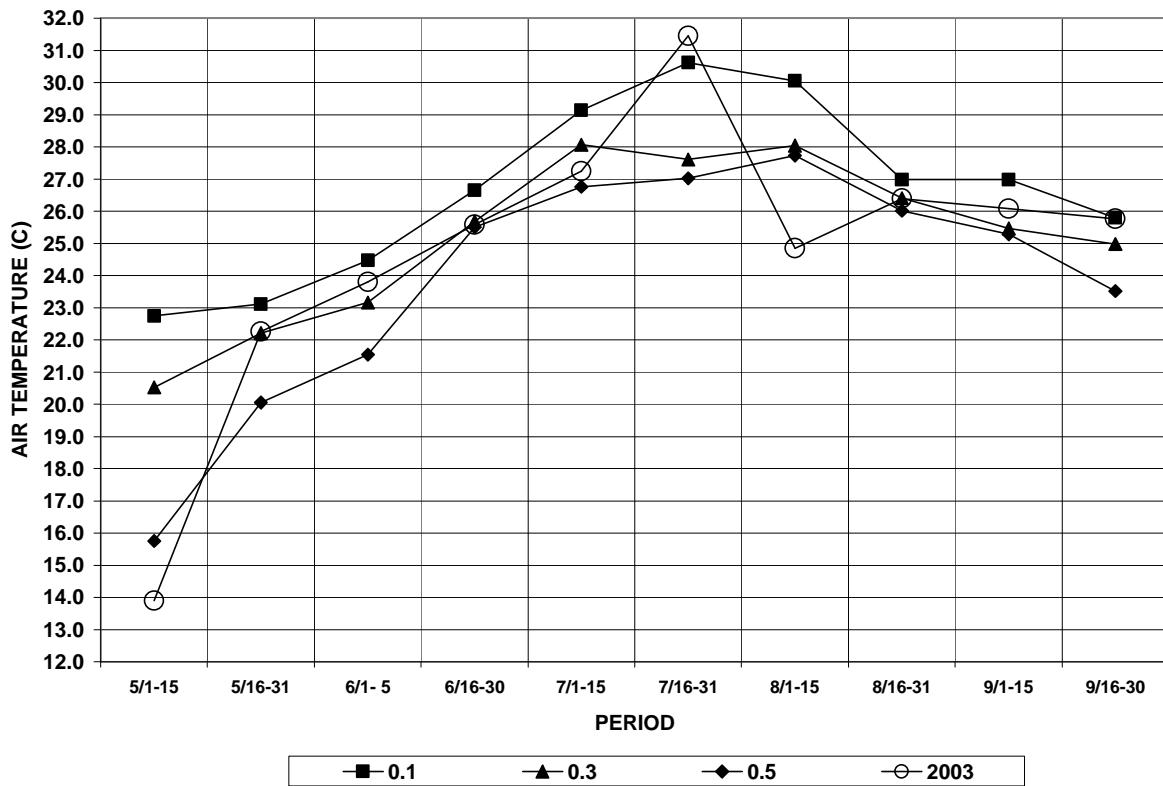
## Air Temperatures

The California Department of Forestry Cohasset Fire Station at elevation 488 m (1,600 ft) is located approximately 8 km (5 miles) northwest of the Centerville Head Dam (Figure 1) and the upper reach of salmon travel at the Quartz Pool at elevation 284 m (931 ft). The Cohasset Fire Station provides the closest systematic air temperature monitoring site to the reach of Butte Creek of concern. Air temperatures during 2003 for the period June – August were generally higher than the 1984-2003 average (Table 8) and during the period July 16-31, 2003 were in the upper 10% for the period of record (Figure 3) (CDWR, 2003). Maximum daily air temperatures exceeded 37.6° C (100° F) on 10 days during the period July 16-31, 2003, while the average number of days of exceedance for the period of record was only 2.5 days.

Table 8. Average daily air temperatures (C) as measured at the California Department of Forestry Cohasset Fire Station for the bi-monthly periods June through September 1998-2003.

Period	Year						Avg. 1998-03
	1998	1999	2000	2001	2002	2003	
June 1-15	18.1	18.3	23.0	23.3	24.3	23.8	21.0
June 16-30	21.3	26.6	28.0	25.5	25.5	25.6	24.6
July 1-15	26.2	27.5	22.7	28.0	29.3	27.2	26.7
July 16-31	27.9	23.1	27.2	25.1	27.1	31.4	26.7
Aug. 1-15	30.9	21.9	28.1	27.7	27.8	24.8	27.1
Aug. 16-31	26.0	27.2	25.0	26.8	26.0	26.4	25.6
Sept. 1-15	28.1	25.3	22.2	25.3	25.7	26.1	24.4
Sept. 16-30	27.7	25.7	22.8	25.2	25.0	25.4	24.2

Figure 3. Average daily air temperature exceedance for period 1984-2002 compared to 2003, California Department of Forestry Cohasset Fire Station.



### Water Temperatures and Flows

Prior to mid-July 2003 water temperatures and flows affecting holding SRCS were at or below historic averages ( Figures 4-6,Tables 9 and 10). The much warmer air temperatures during the last two weeks of July resulted in significantly higher water temperatures throughout the system and specifically impacted the SRCS holding reach between the Quartz Bowl and the Centerville Powerhouse. The peak average

daily water temperature as measured at the Quartz Bowl occurred on July 23, at 20.9°C, while the average daily water temperature for the period July 16-31 was 19.5°C. Pre-spawning mortalities significantly increased during the last week of July and peaked during the second week of August. A similar result was seen during 2002, after water temperatures at Quartz Bowl peaked on July 12, 2002 at 20.8°C (Figure 5 , Appendix E, Table 1), with pre-spawn mortalities significantly increasing during the third week of July, and peaking during early August. While there were no systematic surveys during 2001, 193 carcasses were counted from the week of June 14 through September 6, at the onset of spawning. There was no evidence or reports of large number of fish dieing prior to spawning (Garman, 2001). However, temperatures as measured at Quartz Bowl did not exceed 19.5°C (Figure 6, Appendix E, Table 1). The estimated numbers of holding adult SRCS were similar for 2001, 2002, and 2003, being 18,312, 16,328, and 17,294, respectively. Additionally, average daily flows in the Quartz Bowl to Centerville Powerhouse reach for each of the years were always above the required 40 cfs flow (Appendix G, Table 6).

Figure 4. Average daily water temperature (C) at Quartz Bowl and Toadtown Canals compared to average daily flow (cfs) in Toadtown Canal, June through September 2003.

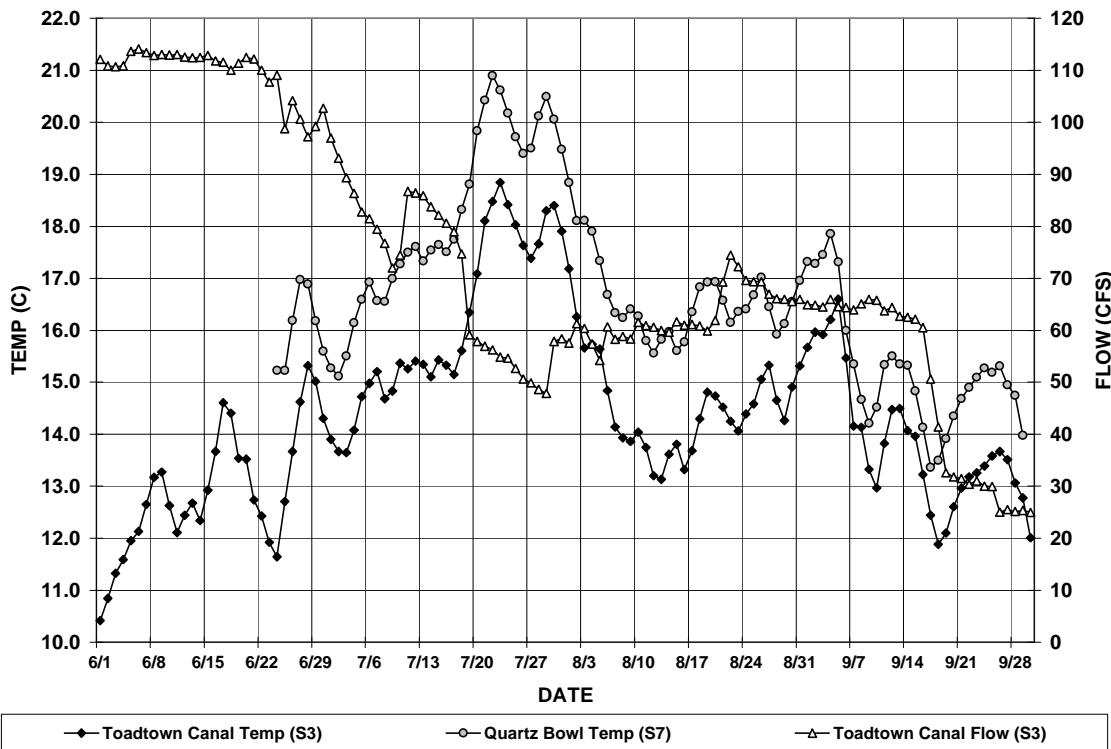


Figure 5. Average daily water temperature (C) at Quartz Bowl and Toadtown Canal compared to average daily flow (cfs) at Toadtown Canal, June through September 2002.

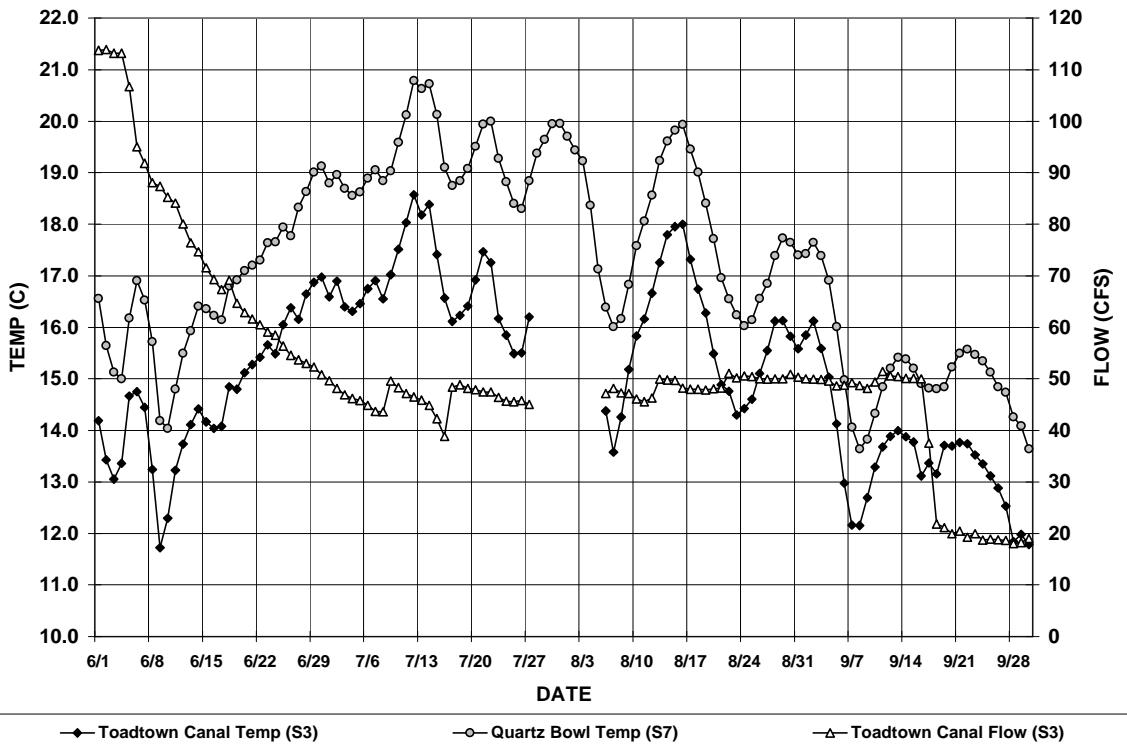
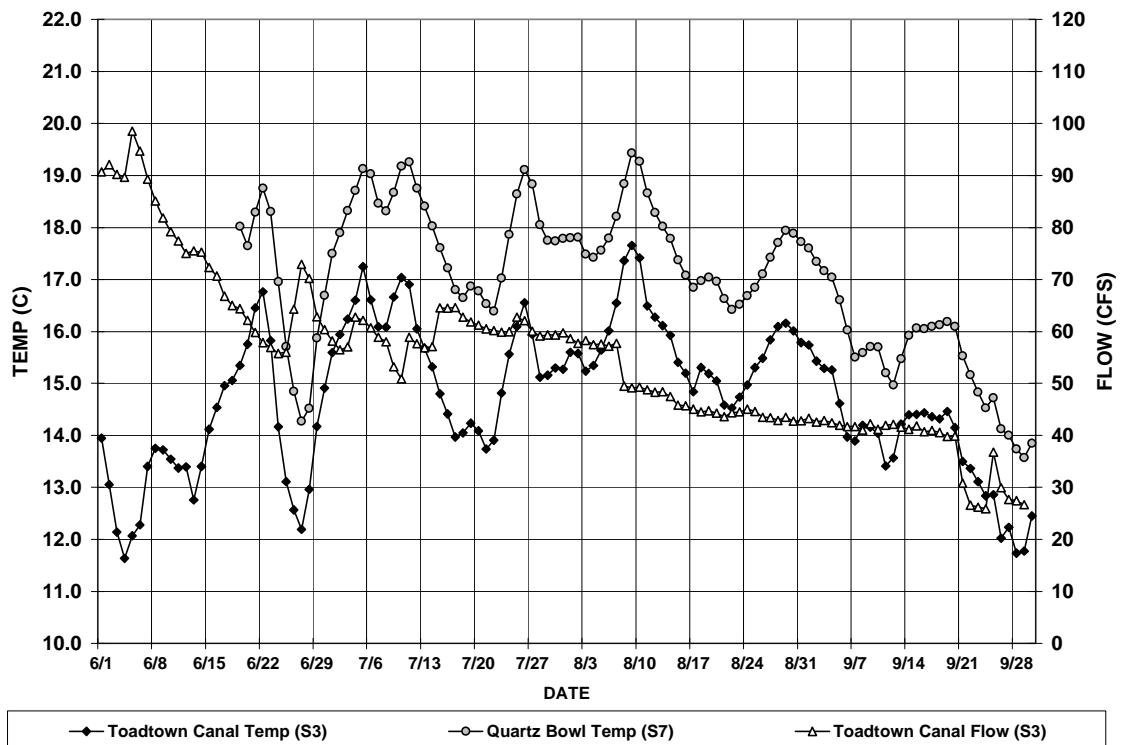


Figure 6. Average daily water temperature (C) at Quartz Bowl and Toadtown Canal compared to average daily flow (cfs) at Toadtown Canal, June through September 2001.



Temperature and flow evaluations, including this review, show that a major source of heating occurs in the DeSabla Forebay (Tables 9 and 10). The DeSabla Forebay thermograph failed on July 18, 2003 and was not reinitiated until August 15, 2003. The limited data for 2003 show heating of approximately 1.37 °C during the first two weeks of July and 1.59°C for July 16-17, prior to the thermograph failure (Tables 9 & 10, Appendix F, Table 1). Previous evaluations by PG&E demonstrated a 1.1°C increase for the period July 1, through September 15 in both 1992 and 1993 (PG&E, 1993). This same analysis suggested a temperature flow relationship and concluded that to keep temperature increases through the forebay less than 1°C required a flow of 108 cfs or greater. A temperature change of less than 2 °C required a flow of at least 46 cfs.

Table 9. Bi-monthly average daily flows (cfs) and water temperature (C) for key sites within PG&E DeSabla Centerville Project affecting Butte Creek SRCS holding and spawning.

Locations*		July 1-15		July 16-31		Aug. 1-15		Aug. 16-31		Sept. 1-15		Sept. 16-30	
		Flow	Temp	Flow	Temp	Flow	Temp	Flow	Temp	Flow	Temp	Flow	Temp
Below Butte Head Dam (Map site S1)	2003	nr	nr	24	nr	21	nr	21	nr	20	nr	20	nr
	1998-2002	18	nr	19	nr	18	nr	18	nr	19	nr	18	nr
Butte Canal (Map site S1-S3)	2003	0	nr	38	nr	43	nr	35	nr	34	nr	31	nr
	1998-2002	52	nr	46	nr	44	nr	46	nr	39	nr	37	nr
Hendricks Head Dam (Map site S2)	2003	nr	14.0	nr	16.5	nr	13.6	nr	13.7	nr	14.1	nr	11.8
Toadtown Canal Above Butte Canal (Map site S3)	2003	84	14.8	59	17.4	59	14.6	66	14.5	64	14.8	33	12.9
	1998-2002	69	15.8	67	15.1	64	15.1	57	14.7	58	13.8	43	12.9
DeSabla Forebay Inflow ( Map site S4) **	2003	86	14.5	96	14.9	102	nr	101	14.3	98	14.2	64	12.4
	1998-2002	121	nr	113	nr	109	nr	103	nr	96	nr	80	nr
Butte Creek Above DeSabla Ph Discharge ( Map site S5)	2003	121	nr	57	nr	44	nr	41	nr	40	nr	37	nr
	1998-2002	42	nr	39	nr	39	nr	36	nr	35	nr	35	nr
DeSabla PH Discharge (Below Map site S5)	2003	86	15.9	96	18.3	102	15.6	101	15.2	98	15.0	64	13.5
	1998-2002	121	nr	113	nr	109	nr	103	nr	96	nr	80	nr
Below Centerville Head Dam (Map site S6)	2003	nr	16.1	52	18.8	45	16.3	44	15.7	44	15.4	44	14.0
	1998-2002	48	NR	47	NR	48	NR	46	NR	46	NR	46	NR
Quartz Bowl (Map site S7)	2003	nr	16.6	52	19.5	45	17.0	44	16.4	44	16.0	44	14.5
	2002	47	19.4	47	19.2	47	18.1	47	17.5	47	15.5	46	14.9
	2001	48	18.5	47	17.5	47	18.1	47	17.1	47	16.1	47	15.0
Chimney Rock (Map site S8)	2003	nr	17.0	52	20.2	45	17.8	44	17.1	44	16.6	44	15.1
	2002	47	20.0	47	19.9	47	18.7	47	18.0	47	15.9	46	15.3
	2001	48	19.1	47	18.2	47	18.7	47	17.6	47	16.6	47	15.5
Pool 4 (Map site S9)	2003	nr	17.7	52	21.2	45	18.9	44	18.2	44	17.6	44	16.0
	2002	47	20.7	47	20.6	47	19.4	47	18.7	47	16.6	46	15.9
	2001	49	20.1	47	19.3	47	19.7	47	18.7	47	17.6	47	16.4
Butte Creek above Centerville PH Discharge (Map site S11)	2003	nr	18.3	52	22.1	45	20.0	44	19.2	44	18.5	44	16.8
Centerville PH Discharge (Map site S10)	2003	116	16.8	130	19.5	116	16.8	117	16.3	112	15.9	76	14.6
	1998-2002	118	nr	105	nr	101	nr	95	nr	93	nr	77	nr
Centerville Estates (Map site S12)	2003	194	18.1	133	20.9	132	18.3	147	17.7	147	17.6	109	nr
	2002	120	20.9	113	20.9	118	19.7	118	19.0	117	16.9	81	16.5
	2001	143	19.9	136	19.0	127	19.7	118	18.7	115	17.6	106	16.5
Cable Bridge (Map site S13)	2003	194	18.7	133	21.7	132	19.1	147	18.3	147	17.9	109	nr
	2002	120	22.0	113	21.9	118	20.7	118	19.9	117	17.7	81	17.4
	2001	143	nr	136	20.9	127	20.6	118	19.7	115	18.5	106	17.4
Covered Bridge (Map site S14)	2003	194	19.6	133	22.6	132	20.1	147	19.3	147	18.6	109	17.4
	2002	120	22.9	113	22.7	118	21.5	118	20.6	117	18.4	81	18.0
	2001	143	21.6	136	20.9	127	21.4	118	20.5	115	19.2	106	18.0
	1998-2002	214	21.0	179	20.8	164	20.7	148	19.7	148	17.8	125	17.3

\* See Figure 1.

\*\* Thermograph failed July 18, 2003 and reinitiated on August 15, 2003.

Additional sources of heating are within the channel of Butte Creek between the DeSabla Powerhouse discharge and the Centerville Head Dam and between the Centerville Head Dam and the Centerville Powerhouse (Tables 9 & 10). The reach between the DeSabla Powerhouse and the Centerville Head Dam is only 0.14 miles and largely influenced by commingling of the warmer natural flows of Butte Creek from above the powerhouse. During 2003, heating within the reach between the Centerville Head Dam and the Quartz Bowl Pool ranged from 0.45°C during the first two weeks of July to 0.81°C during the first two weeks of August. Heating in the reach from the Quartz Bowl Pool to immediately above the Centerville Powerhouse ranged from 1.68°C to 2.96°C. This reach is constrained by the minimum flow release and further tempered by limited ability to reduce heating with flows above the minimum release (PG&E 1993). Flows conveyed via the Centerville Canal were significantly cooler due to short conveyance time and shading and ranged from 0.71°C during the first two weeks of July to 0.48°C during first two weeks of September.

Table 10. Bi-monthly average water temperature increase (C) at key locations within the PG&E DeSabla Centerville Project conveying water into and within Butte Creek July through September.

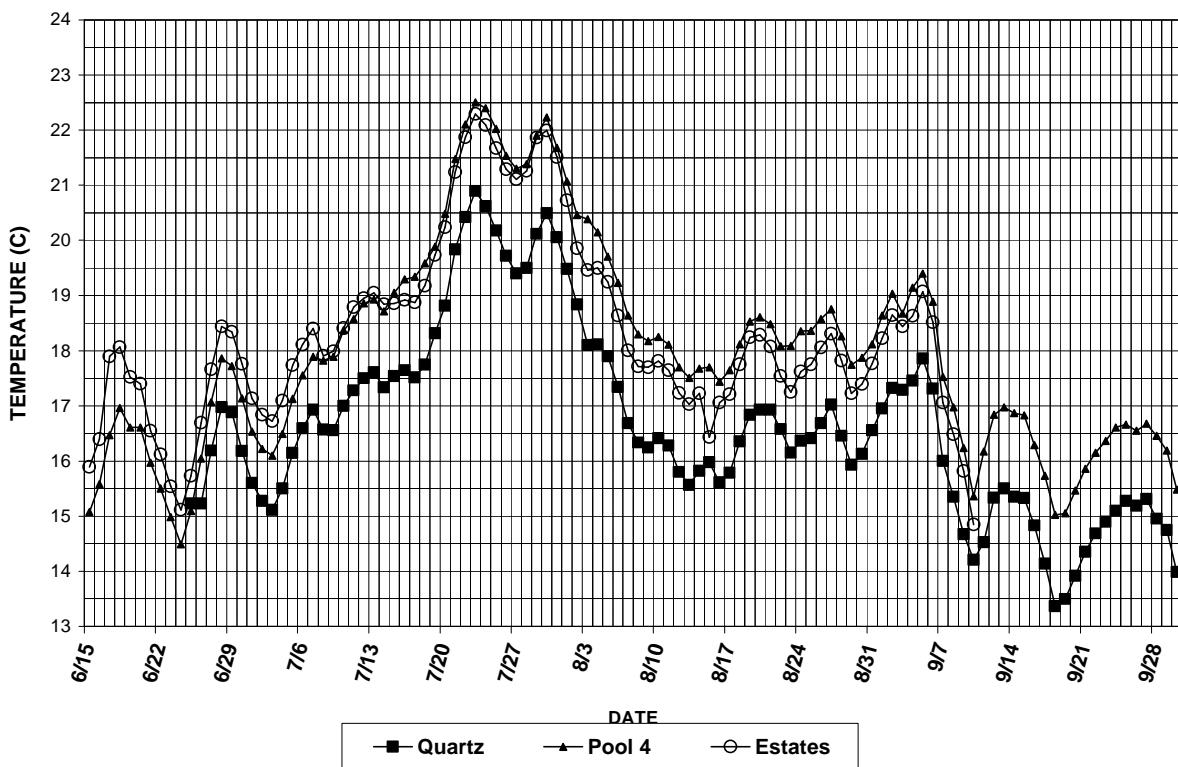
Site and Distance*	July 1-15		July 16-31		Aug. 1-15		Aug. 16-31		Sept. 1-15		Sept. 16-30	
	T o t a l	P e r e r										
Hendricks Head Dam to Toadtown Canal Gage - 2003 (Map site S2 to S3, 10.28 miles)	0.73	0.07	0.95	0.09	0.93	0.09	0.79	0.08	0.69	0.07	1.14	0.11
Toadtown Canal Gage to DeSabla Forebay – 2003 (Map site S3 to S4, 0.88 miles)	-0.22	-0.25	-0.30	-0.34	N D	N D	-0.14	-0.16	-0.55	-0.63	-0.51	-0.57
DeSabla Forebay to DeSabla Powerhouse Outfall – 2003 (Map site S4 to S5, 1.35 miles)	1.37	1.01	1.59	1.18	ND	ND	0.87	0.65	0.79	0.59	1.05	0.78
DeSabla Powerhouse Outflow to Centerville Head Dam – 2003 (Map site S5 to S6, 0.14 miles)	0.21	1.51	0.54	3.87	0.71	5.08	0.51	3.64	0.41	2.90	0.50	3.58
Centerville Head Dam via Centerville Canal to Centerville Powerhouse Outflow – 2003 (Map site S6 to S10/11, 8.19 miles)	0.71	0.09	0.65	0.08	0.55	0.07	0.52	0.06	0.48	0.06	0.63	0.08
Centerville Head Dam via Creek to immediately above Centerville Powerhouse Outflow – 2003 (Map site S6 to S11, 6.62 miles)	2.13	0.32	3.33	0.50	3.77	0.57	3.45	0.52	3.11	0.47	2.86	0.43
Centerville Head Dam to Quartz Bowl Pool – 2003 (Map site S6 to S7, 1.03 miles)	0.45	0.44	0.65	0.63	0.81	0.78	0.67	0.65	0.63	0.62	0.59	0.57
Quartz Bowl Pool to Chimney Rock (Map site S7 to S8, 1.27 miles)	2001	0.56	0.44	0.65	0.51	0.55	0.43	0.52	0.41	0.51	0.40	0.49
	2002	0.60	0.47	0.63	0.50	0.55	0.43	0.50	0.39	0.45	0.35	0.40
	2003	0.46	0.36	0.70	0.55	0.82	0.65	0.73	0.58	0.61	0.48	0.59
	Avg.	0.54	0.43	0.66	0.52	0.64	0.50	0.58	0.46	0.52	0.41	0.49
Chimney Rock to Pool 4 (Map site S8 to S9, 2.19 miles)	2001	1.08	0.50	1.14	0.52	1.05	0.48	1.03	0.47	0.95	0.43	0.95
	2002	0.71	0.32	0.73	0.34	0.72	0.33	0.68	0.31	0.69	0.32	0.64
	2003	0.71	0.33	1.03	0.47	1.06	0.48	1.04	0.48	0.98	0.45	0.89
	Avg.	0.84	0.38	0.97	0.44	0.94	0.43	0.92	0.42	0.87	0.40	0.83
Pool 4 to immediately above Centerville Powerhouse Outflow – 2003 (Map site S9 to S11, 2.13 miles)	0.51	0.24	0.94	0.44	0.97	0.45	1.02	0.48	0.93	0.44	0.79	0.37

\* See Figure 1.

Temperatures at Pool 4 and Estates Pool (Figure 7) provide graphic evidence of the effects of the diversion through the Centerville Powerhouse and the related effect upon SRCS holding and spawning distribution. Flows diverted through the Centerville Powerhouse as measured approximately 0.6 miles

downstream are generally the same temperature as temperatures at Pool 4 for those flows remaining in Butte Creek (Figure 7) and reflect the impacts of the cooler powerhouse discharge.

Figure 7. Average daily water temperatures (C) at select SRCS holding pools in Butte Creek from June 15 through September 30, 2003.



## DISCUSSION

Flow and temperatures within the SRCS holding and spawning reach of Butte Creek are directly affected by the PG&E DeSabla-Centerville Project (FERC-803). At issue is whether the project as currently operated negatively impacts SRCS survival and spawning success. Since about 1908, the project and its' predecessor has imported flows from the West Branch of the Feather River. West Branch flows are commingled with flows from Butte Creek for hydro-power generation. The commingled flows enter Butte Creek at the DeSabla Powerhouse and are combined with the remaining natural flows approximately 1.27 miles above the upper limit of SRCS migration. The flows are then diverted a second time approximately 0.14 miles downstream at the Centerville Head Dam. Up to 180 cfs is conveyed through the Centerville Canal approximately 8.19 miles to Centerville Powerhouse while a minimum of 40 cfs remains in the creek.

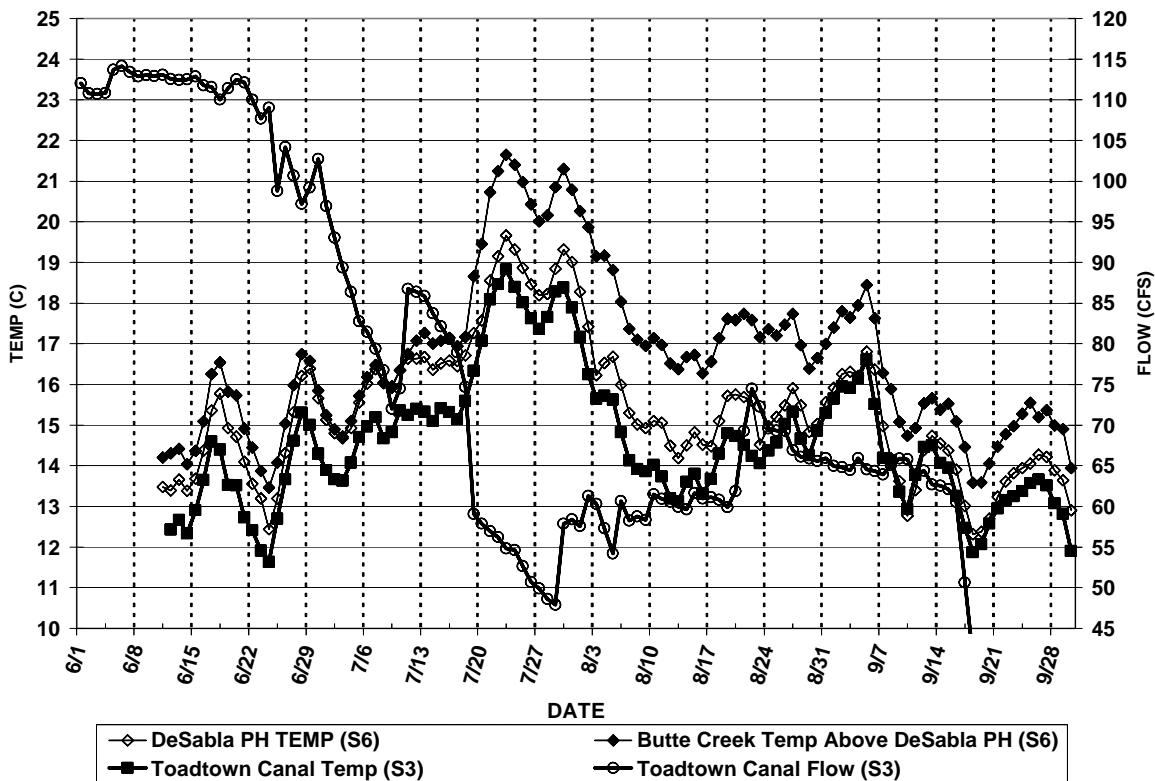
In general, current operations seem to benefit both holding and spawning for Butte Creek SRCS. During the key period July through September project diversions from the West Branch of the Feather River historically have increased the natural flow of Butte Creek by approximately 39% during July, 40%

during August, and 37% during September (Hillaire, 1993). During 2003, West Branch flows comprised approximately 40% (71cfs) of the entire flow of Butte Creek during July, 43% (63 cfs) during August, and 39% ( 49 cfs) during September (Table 9. Appendix G). While the Centerville Head Dam diversion reduces the natural flow in Butte Creek and maintains a minimum of 40 cfs, the diverted flows discharged at the Centerville Powerhouse are generally greater than 2°C cooler than the flows in Butte Creek above the Powerhouse. This cooler discharge at the powerhouse provides more SRCS holding habitat and significantly enhances the spawning distribution allowing better utilization of the majority of the spawning gravel below the powerhouse. While the high temperatures during 2003 in the reach above the powerhouse were likely a key factor in the pre-spawn mortalities, the flow-temperature evaluation (PG&E, 1993) would suggest that increased flows would not have materially reduced the temperatures. Additionally, increased flows would have increased temperatures below the powerhouse, likely causing those SRCS holding below to move upstream. The spawning and holding evaluations conducted since 2001, would suggest that while there is a net downstream movement of SRCS from holding pools to spawning areas, the movement is not over long distances, and there is little net movement from the reach above the powerhouse to below (Table 6, Appendix B and C). Additionally, even with significant pre-spawning mortalities, use of estimated spawning gravel above the powerhouse was exceeded in all three years, and significantly underutilized in the reach below the powerhouse.

Estimates for the total number of SRCS were close for all three years, (2003 - 17,294, 2002 - 16,328, 2001 - 18,312) (Table 6). However pre-spawn mortalities were not of significance during 2001. The maximum daily average water temperature at Quartz Bowl during 2001 was 19.4 °C on August 9. During 2002, temperatures exceeded 19.4°C a total of 16 days with a maximum of 20.8°C on July 12. During 2003, temperatures exceed 19.4°C a total of 11 days with a maximum of 20.9°C. It would appear that pre-spawn mortalities occur when there are sustained water temperatures at Quartz Bowl above 19.0°C, which occurred during 2002 and 2003. During the period July 1-14, 2003, prior to the thermograph failing, heating through DeSabla Forebay averaged 1.39°C at average flows of 87 cfs, with a maximum on July 17, of 1.63°C. While there is not good comparative data for prior years, previous evaluations of the Forebay have consistently shown heating greater than 1°C even at maximum flows. It is thus likely that temperatures at Quartz Bowl Pool during 2002 and 2003 could have been reduced to levels near that of 2001, if the DeSabla Forebay heating was eliminated.

An additional complicating factor was the shift from the West Branch flows through Toadtown Canal to Butte Creek flows from the Butte Canal on July 18. That event occurred due to the need by PG&E to perform critical maintenance on the Butte Canal to preclude a potential failure. The Butte Canal had been shut down during the period June through July 18, with all flows coming from the West Branch. On July 19, the Butte Canal was returned to service and West Branch flows were reduced to 50 cfs and subsequently to 48 cfs on July 29. While difficult to assess because of the malfunction of the thermograph above the DeSabla Forebay, the shift in flows occurred during the period when high air temperatures were causing water temperatures to increase in the SRCS holding area (Figure 8). However, available temperature data do not indicate water temperatures below the Centerville Head Dam were affected.

Figure 8. Temperature (C) and flow (cfs) at key sites during the PG&E Butte Canal outage from June 1, through July 18, 2003.



## CONCLUSIONS AND RECOMMENDATIONS

There were approximately 11,231 Butte Creek SRCS that died prior to spawning during 2003, of which 90 % (10,115) were in the reach above the Centerville Powerhouse. The cause of the mortalities was large numbers of SRCS concentrated in limited holding pools, warm water temperatures, and an outbreak of two pathogens, columnaris and the protozoan Ich. The mortalities were comprised of approximately 62% female and 38% male. Based upon recovery of 24 CWT's, there were approximately 33% age-3 and 67% age-4.

Hydropower generation has altered flows in Butte Creek since about 1908, and appears to have provided a net overall benefit to SRCS. During the key holding period June through September hydropower diversions from the West Branch of the Feather River have significantly increased the natural flows in Butte Creek and generally have provided cooler temperatures. For the period of record (1931-1993) the average volume imported for the months of June through September was June 5,640 dam<sup>3</sup> (4,569 ac-ft), July 4,720 dam<sup>3</sup> (3,823 ac-ft), August 3,954 dam<sup>3</sup> (3,203 ac-ft), and September 3,205 dam<sup>3</sup> (2,596 ac-ft). The imported flows as percentage of the total flows in Butte Creek were approximately by month, June - 28%, July - 39%, August - 40%, and September - 37%. Subsequent to the 1991 FERC requirement that PG&E maintain a minimum release of 40 cfs from June 1 through September 14, below the Centerville Head Dam, the flow and temperature regime appears to have maximized survival and spawning success. Existing evaluations suggest that there is little potential to decrease temperatures by increasing flows in the reach above the Centerville Powerhouse during the summer holding period.

Current diversions through the Centerville Powerhouse significantly decrease temperatures in Butte Creek below the Centerville Powerhouse, provide important holding habitat during the summer, and ultimately contribute to maximum usage of spawning habitat. Based upon the recent evaluation of useable spawning habitat and an average redd area of 23 sq. ft. to 200 sq. ft., it is estimated that at 40 cfs, there is sufficient spawning gravel to accommodate approximately 152 -1,316 adults, and at 130 cfs, approximately 270 -2,352 adults above the Centerville Powerhouse. Below the Centerville Powerhouse, at an average flow of 130 cfs, there is sufficient spawning gravel to accommodate approximately 1,262 – 10,976 adults. During 2003, approximately 1,527 adults spawned above the Powerhouse and 4,536 below. Evaluation of holding and spawning distribution since 2001, shows a net downstream movement from holding pools to spawning habitat. However, there is not significant movement from above the Centerville Powerhouse to below. The result is saturation of spawning habitat above and significant underutilization below.

In general, while current PG&E project operations appear to provide a net benefit to Butte Creek SRCS, several potential modifications should be evaluated and implemented as feasible to alleviate or reduce water temperatures in the holding and spawning reach:

- Alternatives to eliminate heating through the DeSabla Forebay.
- Other means to reduce sources of heating, particularly within the reach of Butte Creek between the Centerville Head Dam and Quartz Bowl Pool.
- Schedule maintenance operations for periods after SRCS have spawned.
- Develop a predictive model to better manage flows from the West Branch of the Feather River.

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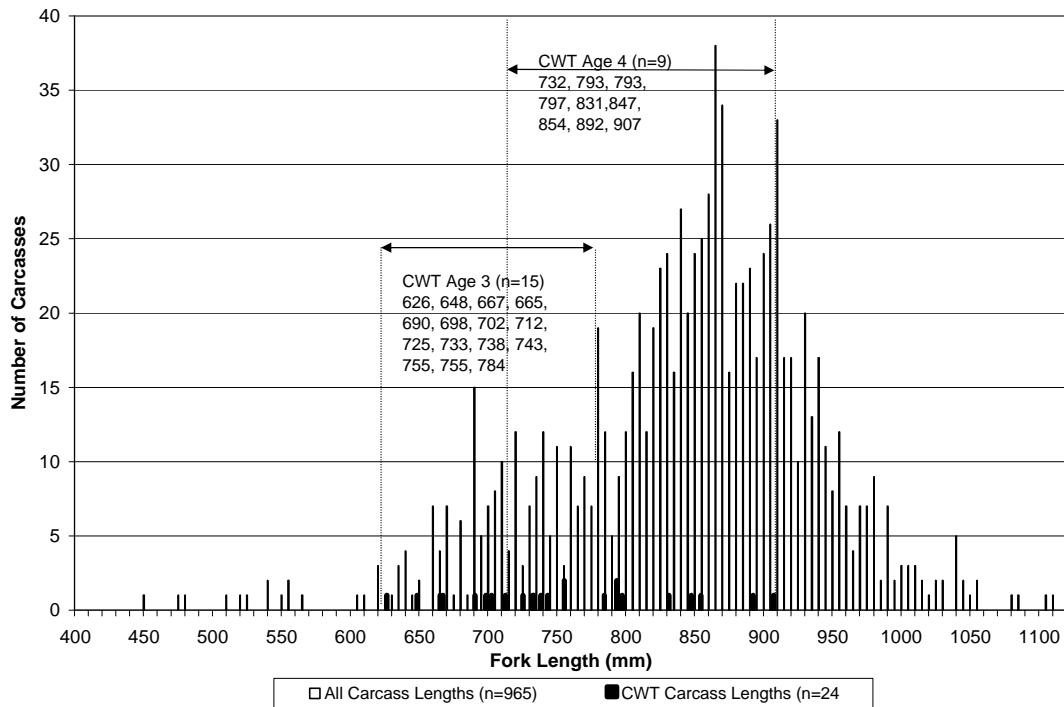
Personal Communication

Colleen Harvey-Arrison, October 21, 2003. Associate Fishery Biologist, California Department of Fish and Game, Northern California-North Coast Region, Red Bluff.

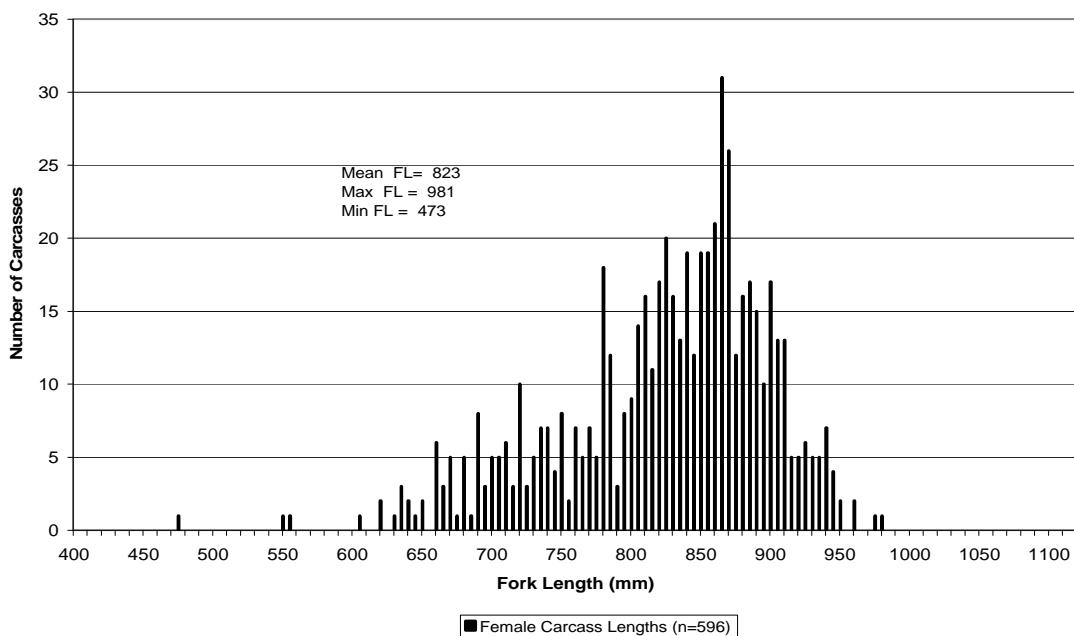
## **APPENDIX A**

### **FIGURES 1-6 LENGTH FREQUENCY DISTRIBUTION OF ADULT BUTTE CREEK SPRING-RUN CHINOOK SALMON**

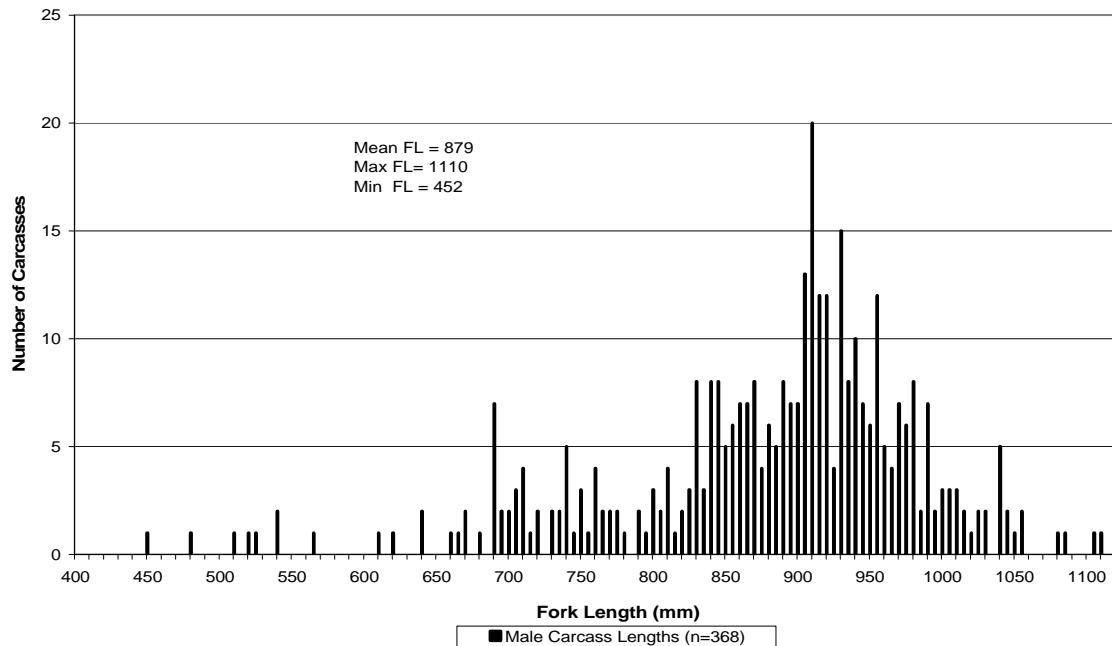
APPENDIX A, Figure 1. Length frequency distribution of 965 adult SRCS carcasses measured and marked for abundance estimate between June 19, 2003 and September 18, 2003.



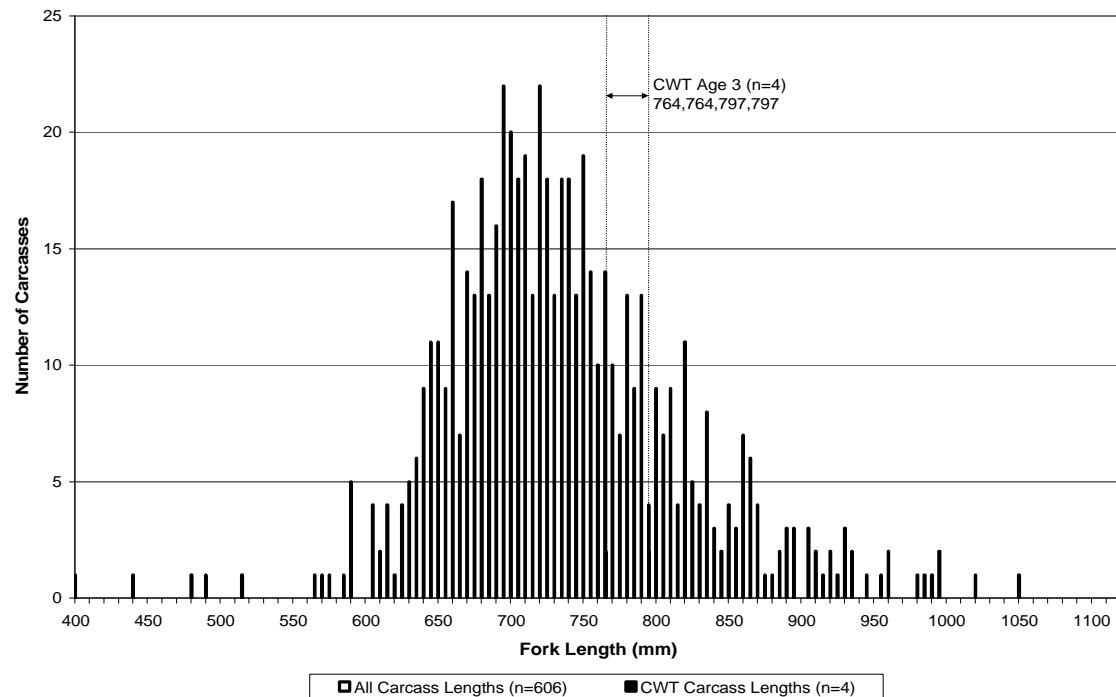
APPENDIX A, Figure 2. Length frequency distribution of 596 female adult SRCS carcasses measured and marked for abundance estimate between June 19, 2003 and September 18, 2003.



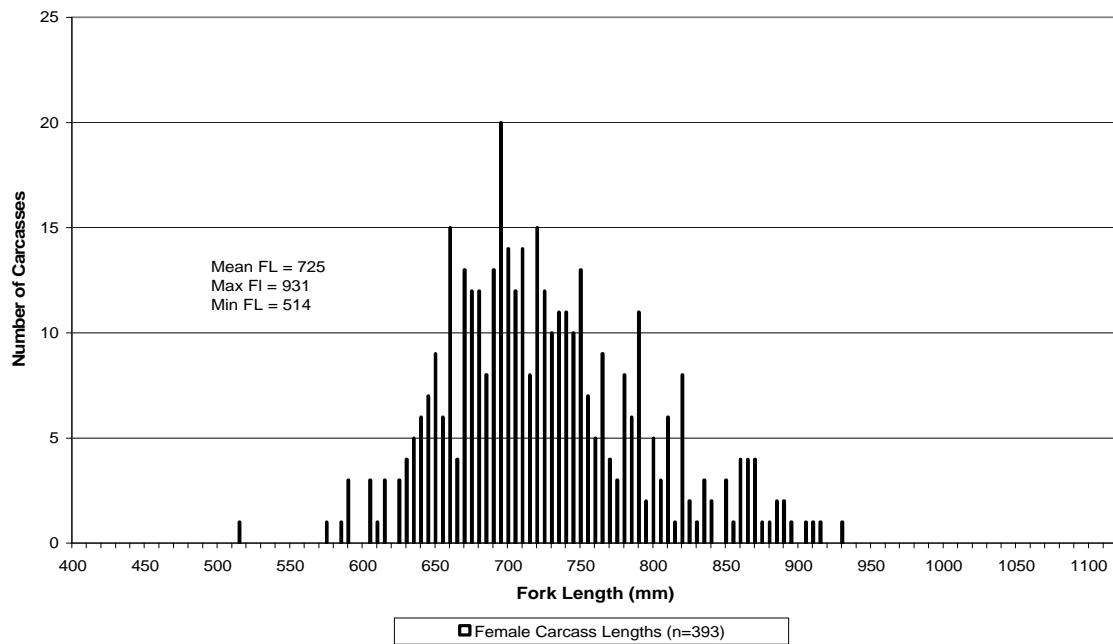
APPENDIX A, Figure 3. Length frequency distribution of 368 male adult SRCS carcasses measured and marked for abundance estimate between June 19, 2003 and September 18, 2003.



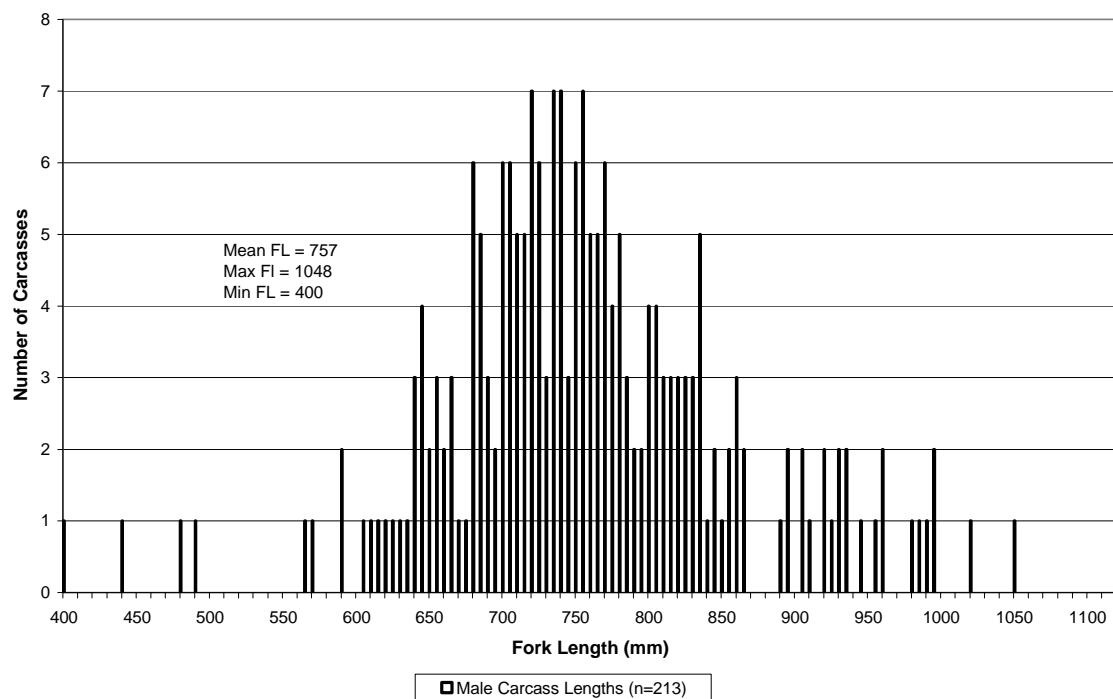
APPENDIX A, Figure 4. Length frequency distribution of 606 adult SRCS carcasses measured for abundance estimate between June 26, 2002 and September 19, 2002.



APPENDIX A, Figure 5. Length frequency distribution of 393 female adult SRCS carcasses measured for abundance estimate between June 26, 2002 and September 19, 2002.



APPENDIX A, Figure 6. Length frequency distribution of 213 male adult SRCS carcasses measured for abundance estimate between June 26, 2002 and September 19, 2002.

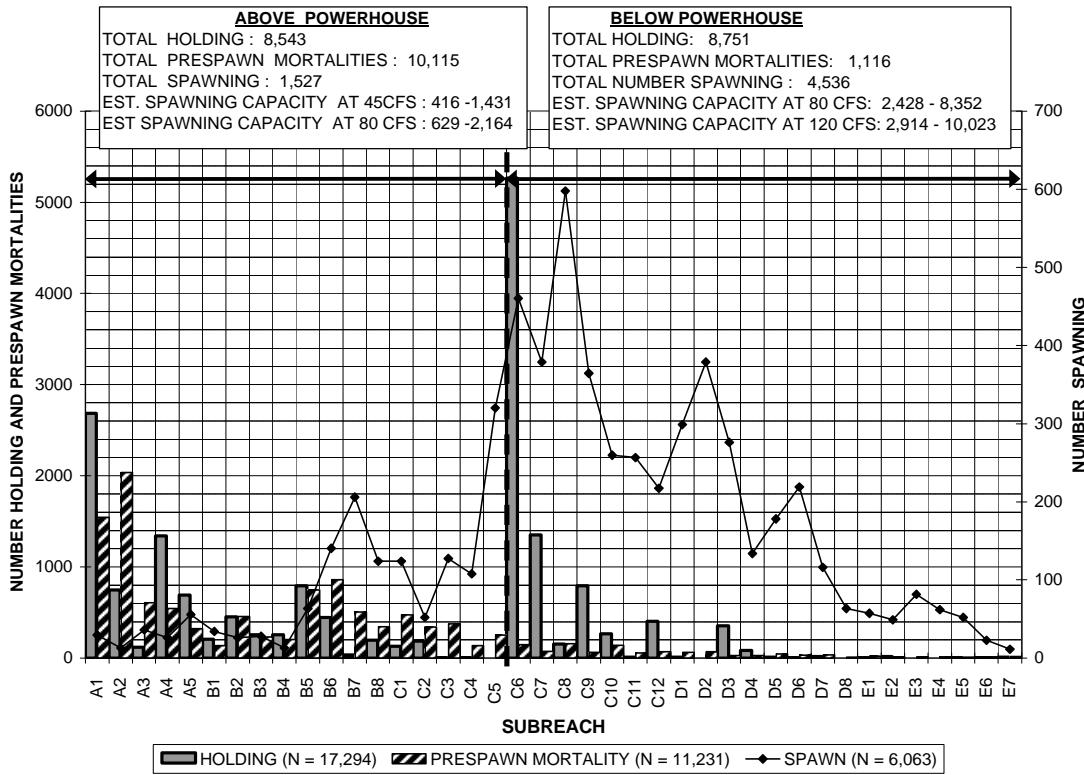


## **APPENDIX B**

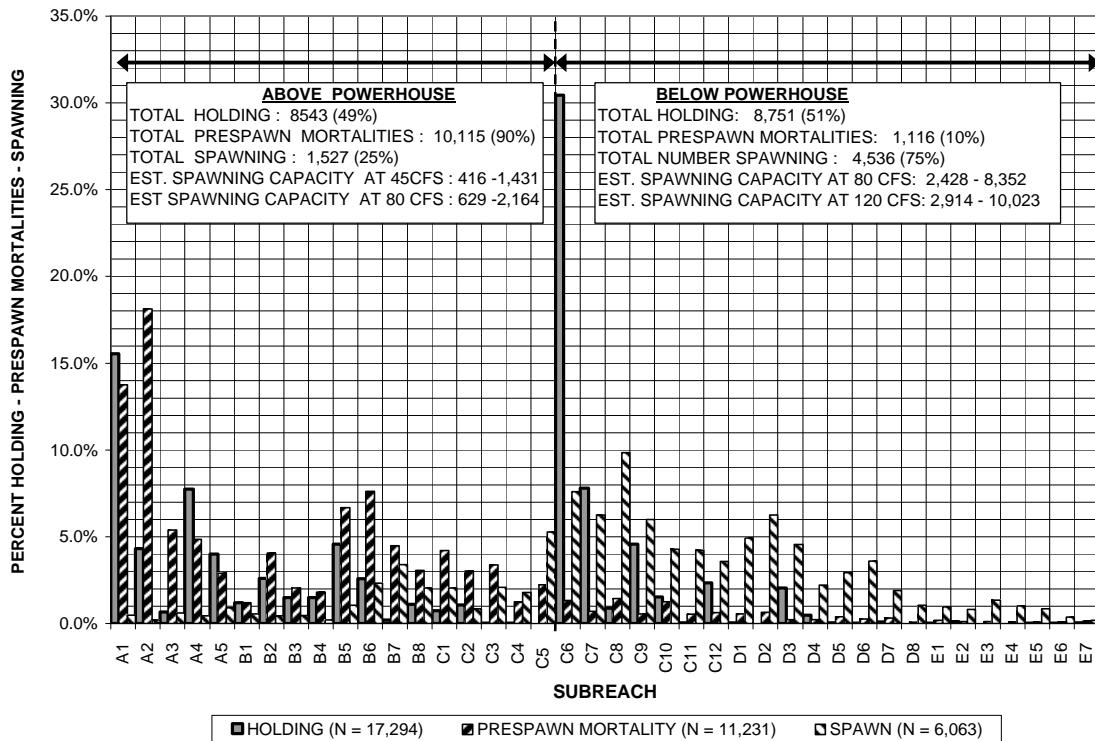
### **FIGURES 1-6**

**HOLDING, PRE-SPAWN MORTALITY AND SPAWNING  
DISTRIBUTION OF BUTTE CREEK SPRING-RUN CHINOOK SALMON**

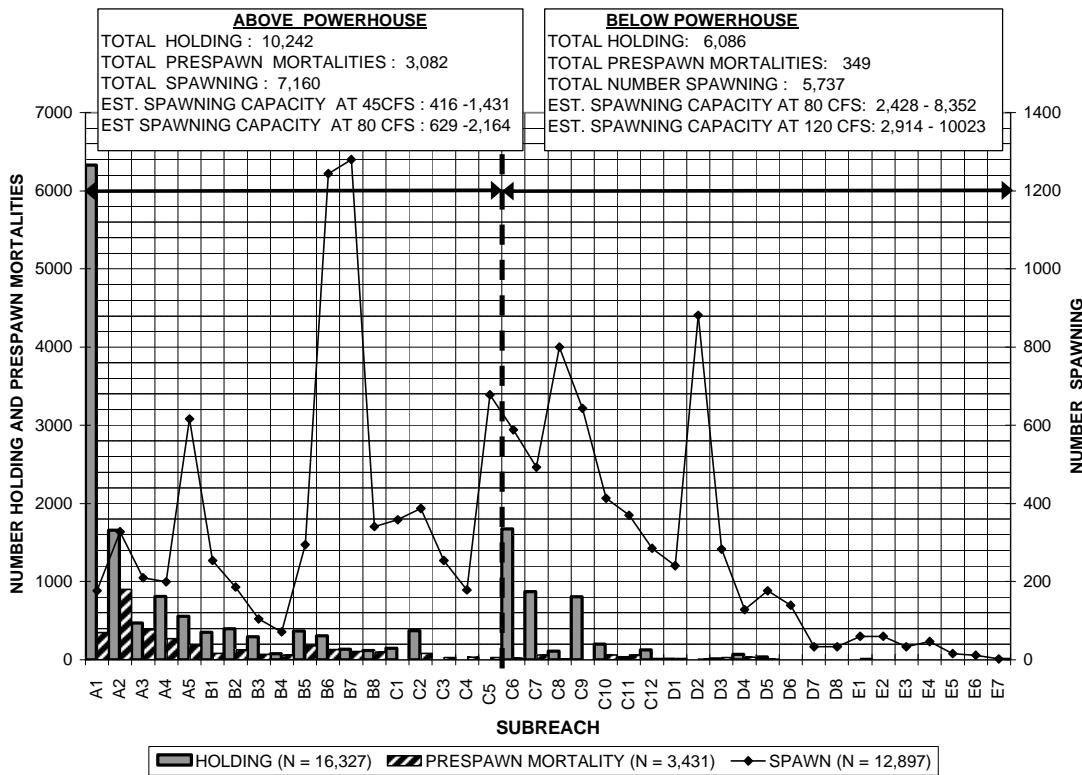
APPENDIX B, Figure 1. Distribution by sub-reach of the number of Butte Creek SRCS holding, pre-spawn mortalities, and spawning during 2003.



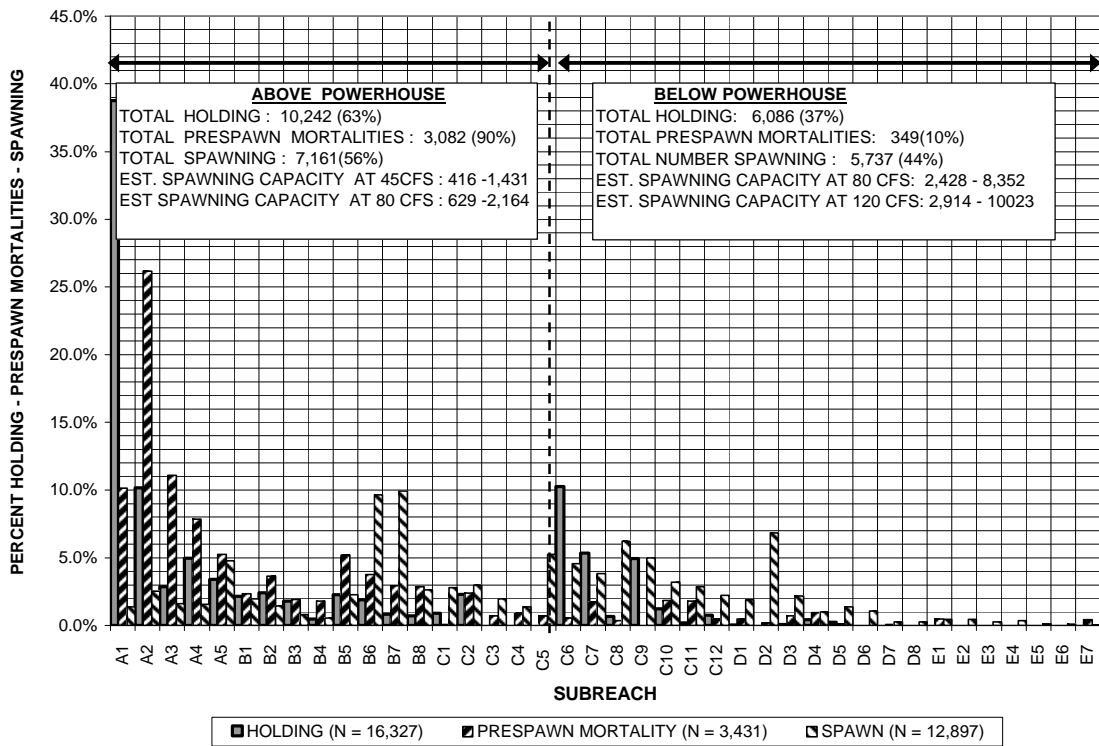
APPENDIX B, Figure 2. Distribution by sub-reach of the percent of Butte Creek SRCS holding, pre-spawn mortalities, and spawning during 2003.



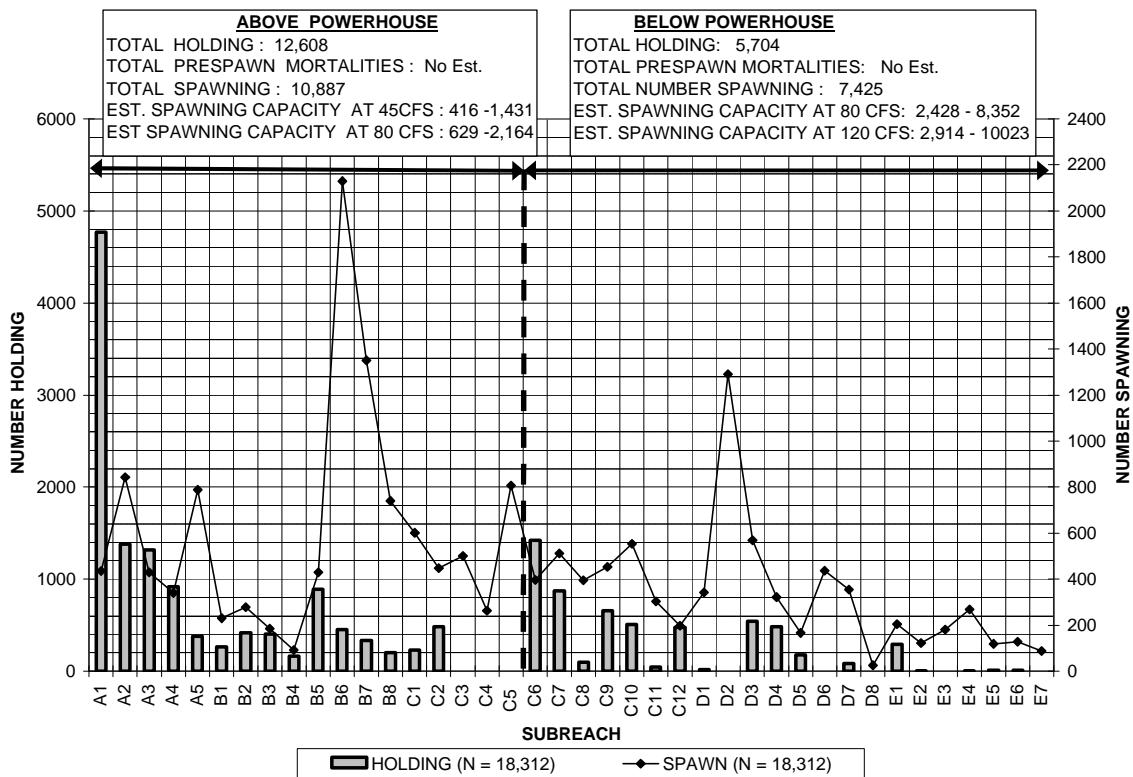
APPENDIX B, Figure 3. Distribution by sub-reach of the number of Butte Creek SRCS holding, pre-spawn mortalities, and spawning during 2002.



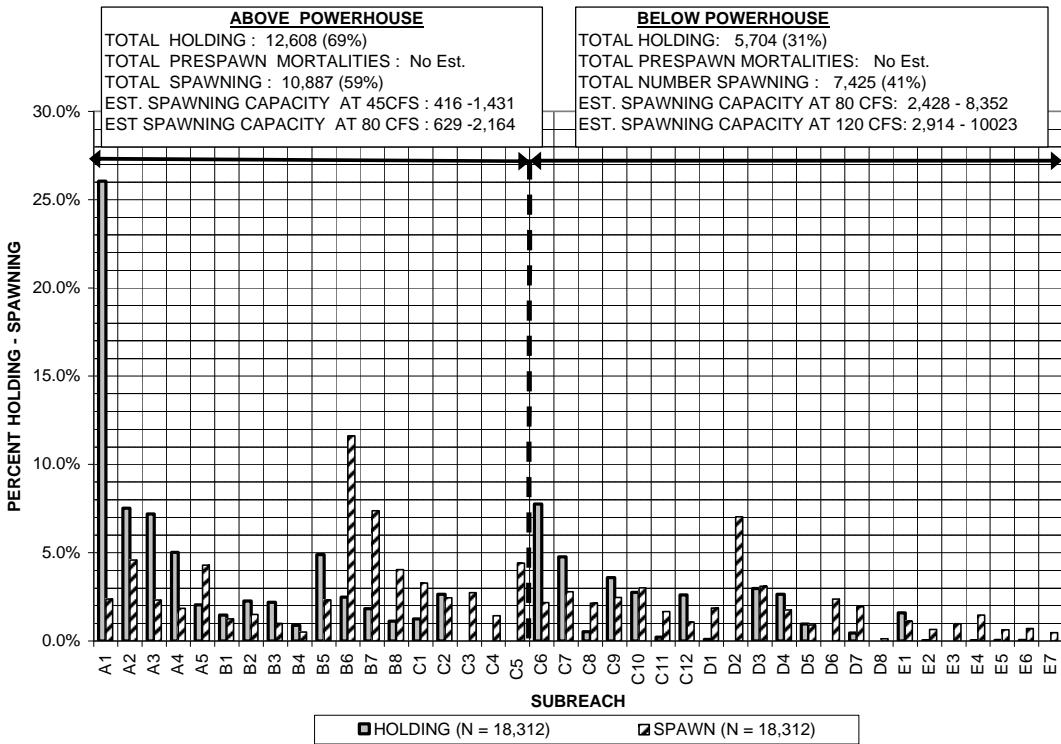
APPENDIX B, Figure 4. Distribution by sub-reach of the percent of Butte Creek SRCS holding, pre-spawn mortalities, and spawning during 2002.



APPENDIX B, Figure 5. Distribution by sub-reach of the number of Butte Creek SRCS holding, pre-spawn mortalities, and spawning during 2001.

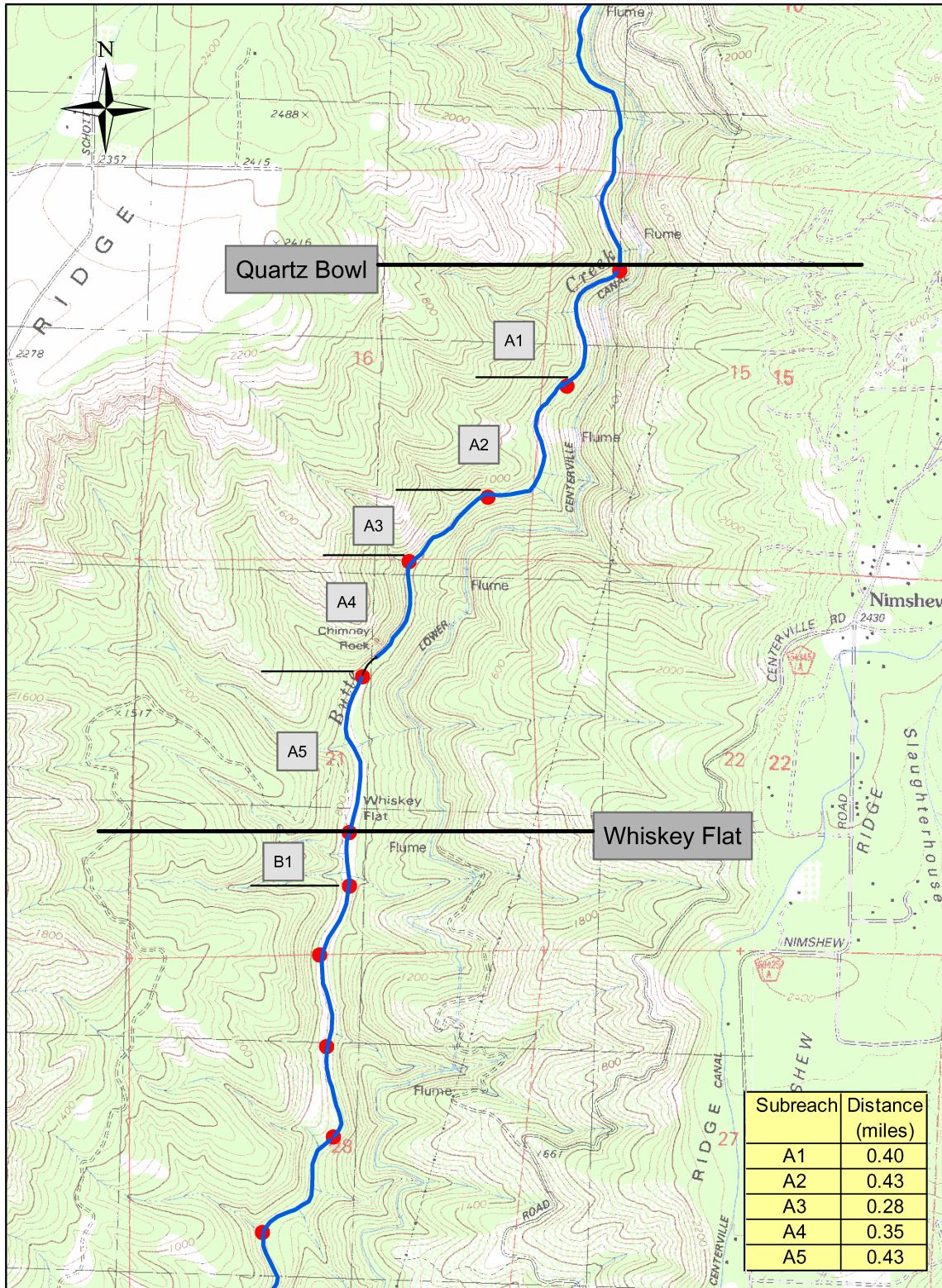


APPENDIX B, Figure 6. Distribution by sub-reach of the percent of Butte Creek SRCS holding, pre-spawn mortalities, and spawning during 2001.

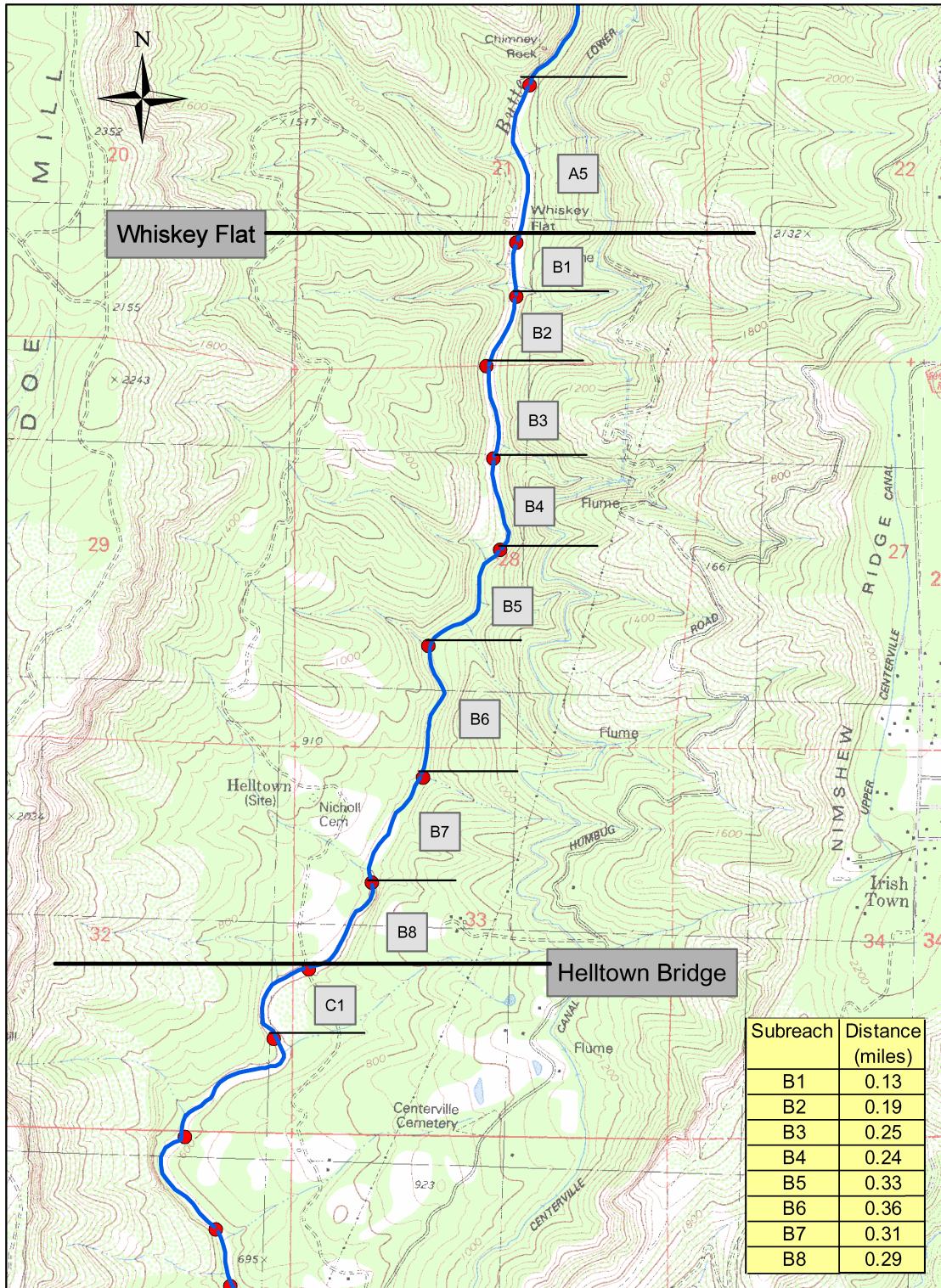


## **APPENDIX C**

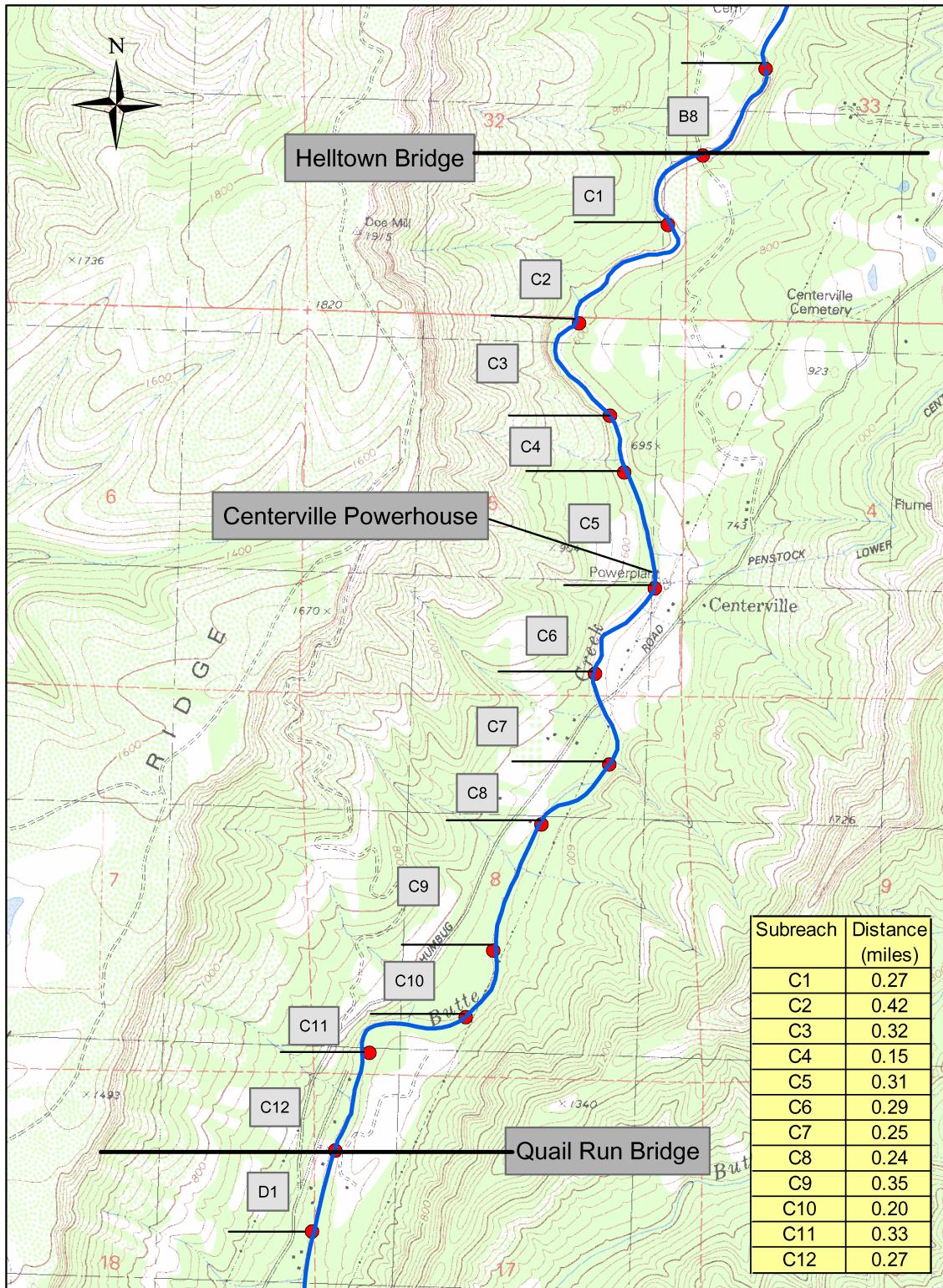
### **FIGURES 1-5 MAPS OF BUTTE CREEK HOLDING AND SPAWNING REACHES**



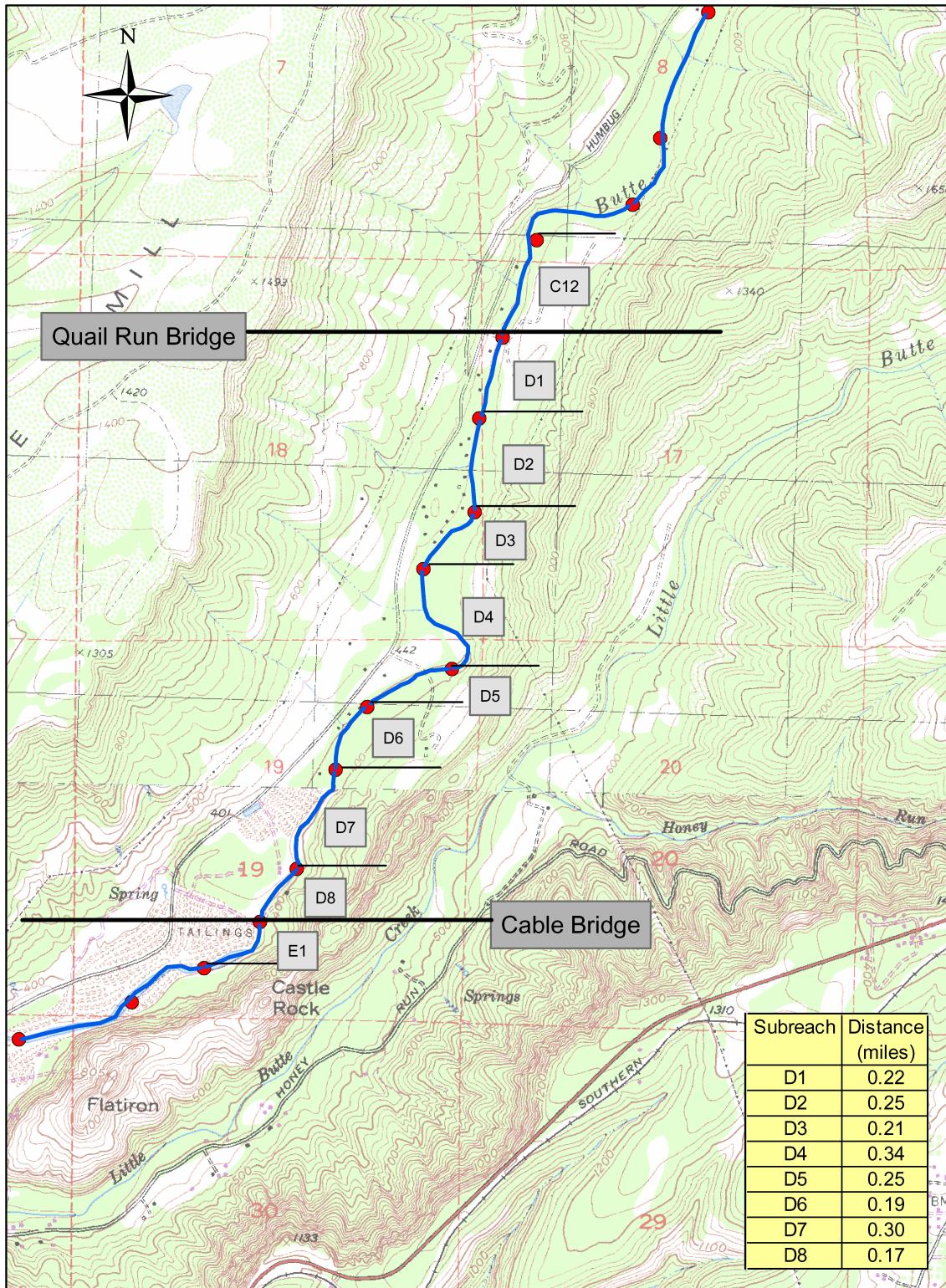
APPENDIX C, Figure 1. Map of Butte Creek spring-run Chinook salmon holding and spawning Reach A, showing sub-reaches and distances.



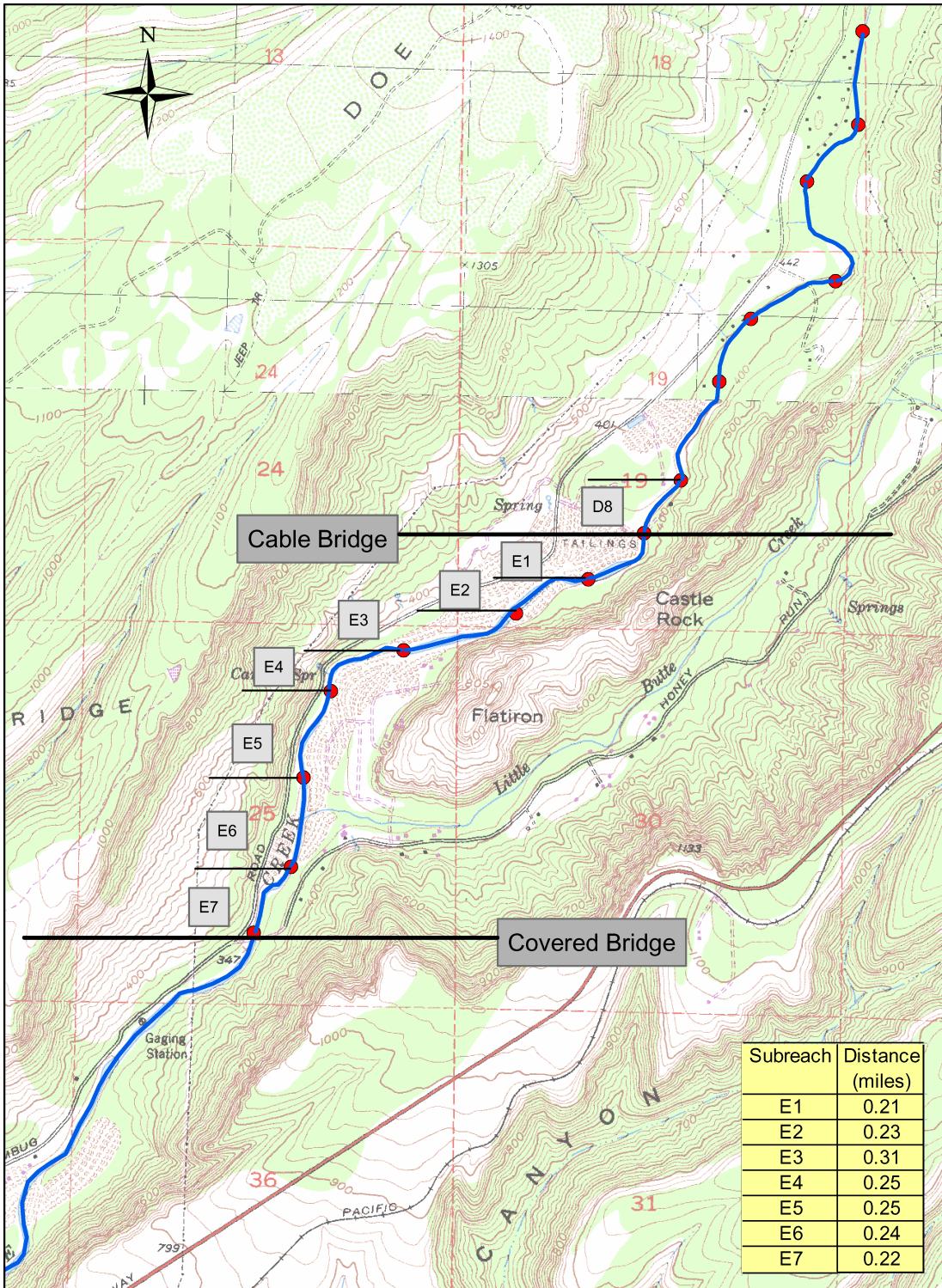
APPENDIX C, Figure 2. Map of Butte Creek spring-run Chinook salmon holding and spawning Reach B, showing sub-reaches and distances.



APPENDIX C, Figure 3. Map of Butte Creek spring-run Chinook salmon holding and spawning Reach C, showing sub-reaches and distances.



APPENDIX C, Figure 4. Map of Butte Creek spring-run Chinook salmon holding and spawning Reach D, showing sub-reaches and distances.



APPENDIX C, Figure 5. Map of Butte Creek spring-run Chinook salmon holding and spawning Reach E, showing sub-reaches and distances.

## **APPENDIX D**

**AIR TEMPERATURES AT COHASSET FIRE STATION  
JUNE 1- SEPTEMBER 30, 1984-2003**

APPENDIX D. Air temperature (Celsius) as measured at California Department of Forestry Cohasset Fire Station (CST), Elevation 1600 Feet, Latitude 39.9000° N, Longitude 121.7000° W, for period June 1 through September 30, 1984-2003.

YEAR - 1984							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	29.4	17.8	23.5	8/1	nr	nr	nr
6/2	26.7	17.8	22.0	8/2	nr	nr	nr
6/3	27.8	16.7	21.1	8/3	nr	nr	nr
6/4	13.9	10.6	11.4	8/4	nr	nr	nr
6/5	19.4	10.0	13.6	8/5	nr	nr	nr
6/6	13.3	5.6	9.1	8/6	nr	nr	nr
6/7	20.0	7.2	12.5	8/7	nr	nr	nr
6/8	22.8	10.0	16.9	8/8	nr	nr	nr
6/9	23.3	11.1	17.2	8/9	nr	nr	nr
6/10	24.4	8.3	17.4	8/10	nr	nr	nr
6/11	25.0	16.1	20.0	8/11	nr	nr	nr
6/12	23.9	14.4	18.7	8/12	nr	nr	nr
6/13	25.0	11.1	18.6	8/13	nr	nr	nr
6/14	30.0	17.8	22.8	8/14	nr	nr	nr
6/15	32.2	20.6	25.8	8/15	nr	nr	nr
6/16	31.7	20.6	26.2	8/16	nr	nr	nr
6/17	32.2	22.2	26.7	8/17	nr	nr	nr
6/18	32.2	20.6	26.7	8/18	nr	nr	nr
6/19	23.9	21.1	22.5	8/19	nr	nr	nr
6/20	23.9	15.6	19.6	8/20	nr	nr	nr
6/21	26.7	13.3	20.9	8/21	nr	nr	nr
6/22	31.7	18.3	25.1	8/22	nr	nr	nr
6/23	33.3	22.2	27.0	8/23	nr	nr	nr
6/24	32.8	22.8	27.4	8/24	nr	nr	nr
6/25	32.2	23.3	27.4	8/25	nr	nr	nr
6/26	32.2	22.2	26.7	8/26	nr	nr	nr
6/27	35.6	26.1	30.6	8/27	nr	nr	nr
6/28	33.9	22.2	27.6	8/28	nr	nr	nr
6/29	30.6	15.6	23.4	8/29	nr	nr	nr
6/30	33.3	19.4	26.8	8/30	nr	nr	nr
7/1	36.7	23.9	30.3	8/31	nr	nr	nr
7/2	41.7	26.7	33.8	9/1	nr	nr	nr
7/3	37.8	28.9	32.2	9/2	nr	nr	nr
7/4	33.9	25.6	29.7	9/3	nr	nr	nr
7/5	38.9	27.2	31.9	9/4	nr	nr	nr
7/6	36.1	25.6	30.3	9/5	nr	nr	nr
7/7	33.9	22.8	27.9	9/6	nr	nr	nr
7/8	32.8	23.9	28.1	9/7	nr	nr	nr
7/9	31.7	20.6	27.0	9/8	nr	nr	nr
7/10	33.9	22.8	27.6	9/9	nr	nr	nr
7/11	33.9	22.8	28.7	9/10	nr	nr	nr
7/12	37.8	23.9	30.6	9/11	nr	nr	nr
7/13	37.8	26.7	31.6	9/12	nr	nr	nr
7/14	38.3	27.2	32.6	9/13	31.7	24.4	27.9
7/15	nr	nr	nr	9/14	30.6	23.3	26.0
7/16	nr	nr	nr	9/15	29.4	22.2	24.8
7/17	nr	nr	nr	9/16	34.4	22.2	28.6
7/18	nr	nr	nr	9/17	35.0	25.0	30.6
7/19	nr	nr	nr	9/18	35.6	25.0	30.6
7/20	nr	nr	nr	9/19	29.4	19.4	24.8
7/21	nr	nr	nr	9/20	25.6	17.8	21.2
7/22	nr	nr	nr	9/21	25.0	16.7	19.9
7/23	nr	nr	nr	9/22	25.6	16.1	21.0
7/24	nr	nr	nr	9/23	21.1	11.1	16.4
7/25	nr	nr	nr	9/24	22.2	11.7	16.6
7/26	nr	nr	nr	9/25	nr	nr	nr
7/27	nr	nr	nr	9/26	nr	nr	nr
7/28	nr	nr	nr	9/27	nr	nr	nr
7/29	nr	nr	nr	9/28	nr	nr	nr
7/30	nr	nr	nr	9/29	nr	nr	nr
7/31	nr	nr	nr	9/30	nr	nr	nr

YEAR - 1985							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	16.1	7.2	11.1	8/1	25.6	16.7	20.4
6/2	19.4	8.3	13.1	8/2	27.2	18.9	21.7
6/3	28.3	14.4	19.7	8/3	32.2	22.8	26.8
6/4	23.9	13.9	19.4	8/4	31.7	23.3	26.3
6/5	27.2	17.2	21.6	8/5	30.6	21.1	25.0
6/6	30.0	18.9	23.1	8/6	31.7	22.2	25.3
6/7	28.9	20.6	23.7	8/7	31.7	20.6	25.2
6/8	31.7	17.8	23.9	8/8	32.8	19.4	26.1
6/9	36.1	23.9	29.1	8/9	33.3	22.2	26.9
6/10	33.9	23.9	28.8	8/10	32.8	23.9	26.9
6/11	37.8	26.7	31.2	8/11	32.8	19.4	25.0
6/12	36.7	27.2	31.6	8/12	27.8	19.4	23.9
6/13	39.4	23.9	30.8	8/13	27.2	15.6	20.6
6/14	37.8	24.4	30.6	8/14	30.0	18.9	23.4
6/15	39.4	25.6	32.0	8/15	22.8	17.2	20.1
6/16	41.7	26.7	33.0	8/16	32.2	18.9	25.2
6/17	36.1	28.3	30.3	8/17	21.1	15.0	18.3
6/18	35.0	25.6	29.7	8/18	27.2	14.4	19.5
6/19	32.2	22.2	27.6	8/19	25.0	17.8	20.1
6/20	28.3	21.1	23.8	8/20	28.3	17.8	22.1
6/21	35.6	21.1	27.5	8/21	30.0	18.3	22.9
6/22	28.9	19.4	23.8	8/22	30.6	22.8	26.3
6/23	33.3	19.4	24.8	8/23	33.3	22.8	29.1
6/24	30.0	17.8	23.7	8/24	36.1	25.0	29.7
6/25	28.3	15.6	21.9	8/25	28.3	25.0	26.9
6/26	32.2	22.8	26.3	8/26	31.7	20.6	27.1
6/27	32.2	22.8	27.9	8/27	31.1	22.2	26.6
6/28	31.7	23.3	26.4	8/28	30.6	18.9	24.2
6/29	28.3	20.6	23.9	8/29	29.4	21.7	25.4
6/30	26.1	18.9	22.2	8/30	28.9	19.4	23.2
7/1	33.9	21.1	27.7	8/31	32.8	21.1	26.3
7/2	34.4	24.4	28.8	9/1	27.2	19.4	23.0
7/3	31.7	23.9	27.8	9/2	22.8	13.3	18.1
7/4	31.1	26.7	28.6	9/3	30.6	16.1	22.2
7/5	36.1	27.2	30.4	9/4	24.4	17.8	21.2
7/6	31.7	27.2	28.8	9/5	25.6	14.4	19.5
7/7	32.2	22.8	26.7	9/6	21.1	14.4	17.4
7/8	36.1	24.4	28.7	9/7	16.1	12.8	14.8
7/9	33.9	26.7	29.7	9/8	16.1	6.7	12.4
7/10	31.1	26.7	28.6	9/9	11.7	7.2	9.9
7/11	28.9	24.4	26.0	9/10	19.4	8.9	14.1
7/12	28.3	24.4	26.7	9/11	16.1	10.0	12.2
7/13	35.0	23.3	28.4	9/12	20.0	8.9	16.8
7/14	32.8	26.7	29.2	9/13	19.4	14.4	17.1
7/15	32.2	26.7	28.4	9/14	22.8	12.2	17.2
7/16	30.6	25.6	28.0	9/15	23.3	13.3	18.0
7/17	32.2	22.8	27.4	9/16	22.8	13.9	18.7
7/18	31.7	22.8	26.2	9/17	17.2	15.0	16.1
7/19	28.3	23.9	25.1	9/18	nr	nr	nr
7/20	26.7	20.6	23.4	9/19	23.9	19.4	21.1
7/21	23.3	20.6	22.0	9/20	26.7	14.4	20.6
7/22	25.6	21.1	23.6	9/21	27.2	18.3	21.9
7/23	32.2	25.0	28.0	9/22	30.6	19.4	24.8
7/24	33.9	27.2	30.7	9/23	31.1	20.6	25.6
7/25	31.1	25.6	29.1	9/24	31.7	21.7	26.1
7/26	30.6	25.6	27.2	9/25	32.2	24.4	27.1
7/27	30.0	28.3	29.2	9/26	28.3	17.2	23.7
7/28	28.3	22.8	25.2	9/27	24.4	14.4	18.6
7/29	17.8	16.7	17.2	9/28	25.0	13.3	17.9
7/30	18.3	13.3	15.8	9/29	22.8	14.4	18.0
7/31	nr	nr	nr	9/30	nr	nr	nr

APPENDIX D. (continued). Air temperature (Celsius) as measured at California Department of Forestry Cohasset Fire Station (CST), Elevation 1600 Feet, Latitude 39.9000° N, Longitude 121.7000° W, for period June 1 through September 30, 1984-2003.

YEAR - 1986 (NO RECORD)							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	nr	nr	nr	8/1	nr	nr	nr
6/2	nr	nr	nr	8/2	nr	nr	nr
6/3	nr	nr	nr	8/3	nr	nr	nr
6/4	nr	nr	nr	8/4	nr	nr	nr
6/5	nr	nr	nr	8/5	nr	nr	nr
6/6	nr	nr	nr	8/6	nr	nr	nr
6/7	nr	nr	nr	8/7	nr	nr	nr
6/8	nr	nr	nr	8/8	nr	nr	nr
6/9	nr	nr	nr	8/9	nr	nr	nr
6/10	nr	nr	nr	8/10	nr	nr	nr
6/11	nr	nr	nr	8/11	nr	nr	nr
6/12	nr	nr	nr	8/12	nr	nr	nr
6/13	nr	nr	nr	8/13	nr	nr	nr
6/14	nr	nr	nr	8/14	nr	nr	nr
6/15	nr	nr	nr	8/15	nr	nr	nr
6/16	nr	nr	nr	8/16	nr	nr	nr
6/17	nr	nr	nr	8/17	nr	nr	nr
6/18	nr	nr	nr	8/18	nr	nr	nr
6/19	nr	nr	nr	8/19	nr	nr	nr
6/20	nr	nr	nr	8/20	nr	nr	nr
6/21	nr	nr	nr	8/21	nr	nr	nr
6/22	nr	nr	nr	8/22	nr	nr	nr
6/23	nr	nr	nr	8/23	nr	nr	nr
6/24	nr	nr	nr	8/24	nr	nr	nr
6/25	nr	nr	nr	8/25	nr	nr	nr
6/26	nr	nr	nr	8/26	nr	nr	nr
6/27	nr	nr	nr	8/27	nr	nr	nr
6/28	nr	nr	nr	8/28	nr	nr	nr
6/29	nr	nr	nr	8/29	nr	nr	nr
6/30	nr	nr	nr	8/30	nr	nr	nr
7/1	nr	nr	nr	8/31	nr	nr	nr
7/2	nr	nr	nr	9/1	nr	nr	nr
7/3	nr	nr	nr	9/2	nr	nr	nr
7/4	nr	nr	nr	9/3	nr	nr	nr
7/5	nr	nr	nr	9/4	nr	nr	nr
7/6	nr	nr	nr	9/5	nr	nr	nr
7/7	nr	nr	nr	9/6	nr	nr	nr
7/8	nr	nr	nr	9/7	nr	nr	nr
7/9	nr	nr	nr	9/8	nr	nr	nr
7/10	nr	nr	nr	9/9	nr	nr	nr
7/11	nr	nr	nr	9/10	nr	nr	nr
7/12	nr	nr	nr	9/11	nr	nr	nr
7/13	nr	nr	nr	9/12	nr	nr	nr
7/14	nr	nr	nr	9/13	nr	nr	nr
7/15	nr	nr	nr	9/14	nr	nr	nr
7/16	nr	nr	nr	9/15	nr	nr	nr
7/17	nr	nr	nr	9/16	nr	nr	nr
7/18	nr	nr	nr	9/17	nr	nr	nr
7/19	nr	nr	nr	9/18	nr	nr	nr
7/20	nr	nr	nr	9/19	nr	nr	nr
7/21	nr	nr	nr	9/20	nr	nr	nr
7/22	nr	nr	nr	9/21	nr	nr	nr
7/23	nr	nr	nr	9/22	nr	nr	nr
7/24	nr	nr	nr	9/23	nr	nr	nr
7/25	nr	nr	nr	9/24	nr	nr	nr
7/26	nr	nr	nr	9/25	nr	nr	nr
7/27	nr	nr	nr	9/26	nr	nr	nr
7/28	nr	nr	nr	9/27	nr	nr	nr
7/29	nr	nr	nr	9/28	nr	nr	nr
7/30	nr	nr	nr	9/29	nr	nr	nr
7/31	nr	nr	nr	9/30	nr	nr	nr

YEAR - 1987							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	32.8	16.1	25.3	8/1	36.1	22.8	29.9
6/2	36.7	23.9	30.8	8/2	38.9	25.6	32.9
6/3	34.4	23.3	29.4	8/3	40.0	26.7	33.5
6/4	22.8	21.7	22.2	8/4	40.0	26.7	33.1
6/5	29.4	15.0	23.9	8/5	38.9	25.6	33.2
6/6	28.3	18.9	23.8	8/6	37.8	25.6	31.4
6/7	31.1	20.0	25.3	8/7	36.1	21.7	28.9
6/8	32.2	18.9	26.3	8/8	35.0	21.7	28.4
6/9	31.1	20.6	26.0	8/9	33.9	22.8	27.6
6/10	32.8	20.6	26.3	8/10	32.2	20.6	25.6
6/11	32.2	20.6	27.1	8/11	32.8	17.8	24.9
6/12	36.1	22.2	29.8	8/12	31.1	18.9	24.7
6/13	41.1	24.4	32.8	8/13	27.8	15.0	22.1
6/14	26.1	12.2	20.7	8/14	22.8	12.2	17.1
6/15	21.7	10.6	17.0	8/15	28.3	13.3	21.3
6/16	25.0	12.8	19.4	8/16	32.2	15.6	24.7
6/17	24.4	10.0	18.6	8/17	35.0	22.2	27.6
6/18	29.4	12.2	22.0	8/18	33.3	18.9	26.5
6/19	30.0	15.6	23.5	8/19	28.3	13.9	20.6
6/20	26.7	11.7	20.1	8/20	28.3	15.0	21.4
6/21	27.8	13.9	20.4	8/21	30.0	15.0	23.0
6/22	31.7	16.7	25.4	8/22	28.9	16.1	22.5
6/23	33.9	20.6	27.5	8/23	29.4	15.0	22.2
6/24	37.8	23.9	30.5	8/24	33.3	16.7	25.2
6/25	40.0	27.2	32.9	8/25	35.6	21.7	28.4
6/26	37.8	26.7	32.5	8/26	32.8	21.1	27.2
6/27	35.6	24.4	30.0	8/27	34.4	18.3	27.2
6/28	31.7	20.6	26.3	8/28	37.8	23.9	30.5
6/29	27.2	16.7	20.9	8/29	41.1	27.2	33.7
6/30	30.6	16.7	24.1	8/30	41.7	27.2	34.1
7/1	26.1	12.8	18.8	8/31	39.4	25.6	31.8
7/2	30.6	15.0	23.1	9/1	35.6	24.4	30.3
7/3	28.3	16.7	22.2	9/2	36.7	25.6	30.6
7/4	28.3	11.1	21.0	9/3	32.8	24.4	27.9
7/5	29.4	13.9	22.6	9/4	31.1	20.0	24.7
7/6	33.3	18.3	26.7	9/5	28.3	14.4	21.0
7/7	36.1	21.7	28.8	9/6	25.6	15.0	19.5
7/8	35.0	20.6	28.1	9/7	26.7	13.9	19.8
7/9	36.7	22.8	28.8	9/8	30.6	18.9	24.6
7/10	32.2	19.4	26.0	9/9	32.2	20.0	25.7
7/11	31.7	15.6	24.2	9/10	28.3	12.2	21.0
7/12	32.8	18.9	26.1	9/11	26.7	13.9	20.1
7/13	36.1	21.1	28.0	9/12	23.9	12.2	18.2
7/14	40.0	25.0	32.5	9/13	23.3	11.1	17.7
7/15	38.3	24.4	30.3	9/14	25.6	12.2	18.9
7/16	29.4	14.4	23.5	9/15	27.8	nr	22.3
7/17	15.0	10.0	13.2	9/16	30.0	16.7	23.1
7/18	22.8	12.2	17.1	9/17	32.2	18.3	24.8
7/19	25.6	12.2	20.0	9/18	31.7	18.9	25.0
7/20	27.8	14.4	21.7	9/19	32.2	19.4	25.7
7/21	20.6	nr	15.5	9/20	36.1	21.7	28.6
7/22	26.1	12.2	19.1	9/21	38.9	25.0	32.2
7/23	27.8	16.7	21.6	9/22	35.0	22.8	28.8
7/24	28.9	16.1	22.6	9/23	31.1	19.4	24.7
7/25	30.0	16.7	23.4	9/24	25.0	16.7	21.3
7/26	31.1	17.8	24.1	9/25	27.8	13.9	21.0
7/27	31.1	16.7	24.2	9/26	31.7	16.7	24.5
7/28	31.1	16.7	25.2	9/27	32.2	18.9	25.2
7/29	29.4	15.0	23.2	9/28	34.4	21.1	27.2
7/30	30.6	13.9	23.7	9/29	36.1	24.4	29.7
7/31	35.0	18.3	28.1	9/30	nr	nr	nr

APPENDIX D. (continued). Air temperature (Celsius) as measured at California Department of Forestry Cohasset Fire Station (CST), Elevation 1600 Feet, Latitude 39.9000° N, Longitude 121.7000° W, for period June 1 through September 30, 1984-2003.

YEAR - 1988							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	16.7	3.3	10.5	8/1	34.4	17.8	27.2
6/2	20.6	9.4	14.4	8/2	30.6	18.9	25.0
6/3	20.6	10.0	14.8	8/3	33.3	16.7	25.7
6/4	16.7	2.2	9.0	8/4	32.8	20.6	27.4
6/5	nr	nr	nr	8/5	31.1	18.3	24.4
6/6	11.1	nr	4.8	8/6	28.9	11.7	21.0
6/7	11.7	5.6	7.5	8/7	30.6	16.1	23.1
6/8	13.9	7.2	10.2	8/8	33.3	19.4	26.5
6/9	nr	nr	nr	8/9	36.1	22.2	28.7
6/10	nr	nr	nr	8/10	32.2	20.0	26.3
6/11	nr	nr	nr	8/11	30.6	17.2	23.5
6/12	nr	nr	nr	8/12	25.6	12.2	18.4
6/13	nr	nr	nr	8/13	27.2	8.3	18.4
6/14	nr	nr	nr	8/14	27.8	15.0	21.0
6/15	35.0	22.8	29.7	8/15	29.4	13.9	22.1
6/16	27.8	16.7	21.9	8/16	33.3	18.9	25.6
6/17	31.1	15.0	24.1	8/17	34.4	21.7	28.1
6/18	36.1	20.6	28.9	8/18	37.2	22.2	29.7
6/19	37.2	26.1	31.6	8/19	39.4	24.4	31.3
6/20	37.2	21.7	28.5	8/20	37.2	22.8	28.8
6/21	30.0	16.7	23.5	8/21	33.3	17.8	26.9
6/22	34.4	18.9	27.1	8/22	32.8	18.3	25.9
6/23	38.9	24.4	31.9	8/23	35.0	22.2	28.1
6/24	41.1	24.4	32.2	8/24	36.7	22.8	29.5
6/25	32.2	20.6	27.1	8/25	40.0	24.4	32.2
6/26	31.1	17.2	24.7	8/26	38.9	27.2	32.5
6/27	31.1	19.4	25.6	8/27	38.9	27.2	32.2
6/28	30.0	16.7	23.1	8/28	39.4	24.4	31.1
6/29	30.6	12.2	23.0	8/29	39.4	23.3	31.9
6/30	34.4	19.4	27.2	8/30	38.9	25.0	31.9
7/1	35.6	21.7	29.7	8/31	38.3	25.0	31.5
7/2	36.1	23.9	30.5	9/1	40.0	26.1	32.5
7/3	32.2	20.0	27.1	9/2	40.0	25.6	32.6
7/4	26.7	nr	19.3	9/3	43.9	28.3	35.6
7/5	28.3	10.6	21.1	9/4	41.7	28.3	35.0
7/6	32.8	17.8	26.3	9/5	42.8	28.9	35.0
7/7	35.0	21.7	28.0	9/6	36.1	24.4	29.7
7/8	36.1	22.8	29.4	9/7	36.1	21.1	28.1
7/9	38.3	24.4	31.7	9/8	35.0	21.1	26.9
7/10	37.2	24.4	30.8	9/9	30.6	16.7	23.8
7/11	29.4	20.0	24.8	9/10	32.2	15.6	23.7
7/12	31.1	16.7	24.3	9/11	31.7	18.3	24.6
7/13	32.8	18.9	25.9	9/12	29.4	17.2	23.4
7/14	31.1	18.9	25.9	9/13	28.9	18.9	23.5
7/15	35.0	16.7	26.7	9/14	31.1	18.9	24.4
7/16	40.0	28.3	35.0	9/15	31.7	17.8	24.8
7/17	42.8	27.2	35.5	9/16	28.9	18.9	23.7
7/18	42.2	28.3	35.8	9/17	28.9	17.8	22.4
7/19	43.9	28.9	36.7	9/18	29.4	15.0	22.7
7/20	42.8	nr	34.7	9/19	25.0	15.0	20.0
7/21	38.9	21.7	32.0	9/20	26.1	13.9	20.1
7/22	40.0	24.4	31.0	9/21	27.2	14.4	20.9
7/23	39.4	25.6	32.6	9/22	26.1	12.2	19.5
7/24	37.2	25.6	30.5	9/23	28.3	16.1	21.7
7/25	33.3	24.4	28.9	9/24	29.4	16.1	22.3
7/26	36.7	27.2	31.6	9/25	22.8	12.2	16.6
7/27	37.8	25.6	31.6	9/26	25.6	11.7	18.0
7/28	37.8	21.7	30.4	9/27	27.8	16.1	20.7
7/29	38.3	26.7	32.3	9/28	33.3	20.0	26.7
7/30	37.8	27.2	31.9	9/29	35.6	21.7	28.3
7/31	35.0	21.7	28.1	9/30	nr	nr	nr

YEAR – 1989 (NO RECORD)							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	nr	nr	nr	8/1	nr	nr	nr
6/2	nr	nr	nr	8/2	nr	nr	nr
6/3	nr	nr	nr	8/3	nr	nr	nr
6/4	nr	nr	nr	8/4	nr	nr	nr
6/5	nr	nr	nr	8/5	nr	nr	nr
6/6	nr	nr	nr	8/6	nr	nr	nr
6/7	nr	nr	nr	8/7	nr	nr	nr
6/8	nr	nr	nr	8/8	nr	nr	nr
6/9	nr	nr	nr	8/9	nr	nr	nr
6/10	nr	nr	nr	8/10	nr	nr	nr
6/11	nr	nr	nr	8/11	nr	nr	nr
6/12	nr	nr	nr	8/12	nr	nr	nr
6/13	nr	nr	nr	8/13	nr	nr	nr
6/14	nr	nr	nr	8/14	nr	nr	nr
6/15	nr	nr	nr	8/15	nr	nr	nr
6/16	nr	nr	nr	8/16	nr	nr	nr
6/17	nr	nr	nr	8/17	nr	nr	nr
6/18	nr	nr	nr	8/18	nr	nr	nr
6/19	nr	nr	nr	8/19	nr	nr	nr
6/20	nr	nr	nr	8/20	nr	nr	nr
6/21	nr	nr	nr	8/21	nr	nr	nr
6/22	nr	nr	nr	8/22	nr	nr	nr
6/23	nr	nr	nr	8/23	nr	nr	nr
6/24	nr	nr	nr	8/24	nr	nr	nr
6/25	nr	nr	nr	8/25	nr	nr	nr
6/26	nr	nr	nr	8/26	nr	nr	nr
6/27	nr	nr	nr	8/27	nr	nr	nr
6/28	nr	nr	nr	8/28	nr	nr	nr
6/29	nr	nr	nr	8/29	nr	nr	nr
6/30	nr	nr	nr	8/30	nr	nr	nr
7/1	nr	nr	nr	8/31	nr	nr	nr
7/2	nr	nr	nr	9/1	nr	nr	nr
7/3	nr	nr	nr	9/2	nr	nr	nr
7/4	nr	nr	nr	9/3	nr	nr	nr
7/5	nr	nr	nr	9/4	nr	nr	nr
7/6	nr	nr	nr	9/5	nr	nr	nr
7/7	nr	nr	nr	9/6	nr	nr	nr
7/8	nr	nr	nr	9/7	nr	nr	nr
7/9	nr	nr	nr	9/8	nr	nr	nr
7/10	nr	nr	nr	9/9	nr	nr	nr
7/11	nr	nr	nr	9/10	nr	nr	nr
7/12	nr	nr	nr	9/11	nr	nr	nr
7/13	nr	nr	nr	9/12	nr	nr	nr
7/14	nr	nr	nr	9/13	nr	nr	nr
7/15	nr	nr	nr	9/14	nr	nr	nr
7/16	nr	nr	nr	9/15	nr	nr	nr
7/17	nr	nr	nr	9/16	nr	nr	nr
7/18	nr	nr	nr	9/17	nr	nr	nr
7/19	nr	nr	nr	9/18	nr	nr	nr
7/20	nr	nr	nr	9/19	nr	nr	nr
7/21	nr	nr	nr	9/20	nr	nr	nr
7/22	nr	nr	nr	9/21	nr	nr	nr
7/23	nr	nr	nr	9/22	nr	nr	nr
7/24	nr	nr	nr	9/23	nr	nr	nr
7/25	nr	nr	nr	9/24	nr	nr	nr
7/26	nr	nr	nr	9/25	nr	nr	nr
7/27	nr	nr	nr	9/26	nr	nr	nr
7/28	nr	nr	nr	9/27	nr	nr	nr
7/29	nr	nr	nr	9/28	nr	nr	nr
7/30	nr	nr	nr	9/29	nr	nr	nr
7/31	nr	nr	nr	9/30	nr	nr	nr

APPENDIX D. (continued). Air temperature (Celsius) as measured at California Department of Forestry Cohasset Fire Station (CST), Elevation 1600 Feet, Latitude 39.9000° N, Longitude 121.7000° W, for period June 1 through September 30, 1984-2003.

YEAR - 1990							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	21.1	7.8	15.1	8/1	37.8	23.9	31.5
6/2	24.4	14.4	19.7	8/2	36.1	23.9	29.9
6/3	25.6	17.2	21.7	8/3	35.0	20.6	28.4
6/4	27.2	13.3	20.8	8/4	38.3	21.7	30.0
6/5	29.4	16.1	22.9	8/5	41.1	25.6	33.6
6/6	24.4	16.7	19.7	8/6	43.9	31.1	36.2
6/7	31.7	14.4	24.2	8/7	40.0	30.6	34.5
6/8	33.3	23.3	28.4	8/8	40.6	26.1	32.3
6/9	31.1	18.9	25.7	8/9	41.7	29.4	34.4
6/10	26.1	15.0	20.9	8/10	40.0	27.8	33.2
6/11	28.3	15.0	22.2	8/11	37.8	27.2	32.0
6/12	26.7	15.0	21.2	8/12	36.1	23.9	29.1
6/13	22.8	13.9	17.4	8/13	36.1	22.2	29.0
6/14	24.4	13.3	18.4	8/14	30.6	16.7	23.5
6/15	24.4	11.1	18.0	8/15	27.8	12.2	20.3
6/16	25.0	11.1	17.8	8/16	27.2	13.9	21.7
6/17	26.7	16.1	20.7	8/17	27.2	17.8	23.2
6/18	28.3	13.3	20.8	8/18	26.1	15.0	21.6
6/19	33.9	21.7	27.3	8/19	26.7	14.4	22.0
6/20	37.2	27.2	30.8	8/20	28.9	17.2	24.5
6/21	37.8	25.0	30.4	8/21	30.6	16.1	24.2
6/22	27.8	16.7	22.5	8/22	35.0	21.1	26.9
6/23	31.7	16.7	22.9	8/23	33.9	21.7	27.0
6/24	30.6	18.9	23.8	8/24	25.6	13.9	18.9
6/25	31.1	17.8	23.2	8/25	21.7	11.7	15.7
6/26	30.6	18.9	23.7	8/26	21.1	12.2	16.8
6/27	29.4	17.2	23.0	8/27	27.2	15.0	20.7
6/28	33.3	18.9	27.5	8/28	31.1	18.3	23.8
6/29	30.0	22.8	25.5	8/29	27.8	20.0	23.4
6/30	24.4	24.4	24.4	8/30	29.4	15.6	22.3
7/1	nr	nr	nr	8/31	31.1	16.1	22.9
7/2	28.3	18.9	23.9	9/1	31.1	18.9	24.0
7/3	30.6	20.6	25.1	9/2	31.7	18.3	24.3
7/4	27.2	13.3	21.6	9/3	30.0	17.8	23.4
7/5	27.2	17.8	22.6	9/4	31.1	15.0	22.4
7/6	30.0	17.8	24.8	9/5	32.2	nr	20.7
7/7	32.2	21.1	26.6	9/6	32.8	20.6	25.2
7/8	33.3	20.0	27.0	9/7	32.2	20.6	26.2
7/9	35.0	21.7	28.9	9/8	33.3	19.4	25.8
7/10	39.4	25.6	34.0	9/9	36.1	20.6	28.0
7/11	41.1	30.0	35.0	9/10	36.7	23.9	29.2
7/12	41.7	28.3	35.4	9/11	32.8	17.8	26.1
7/13	41.7	31.1	35.8	9/12	31.7	20.0	25.3
7/14	41.7	30.6	34.6	9/13	30.6	15.0	23.1
7/15	36.7	25.6	30.9	9/14	26.1	14.4	20.2
7/16	35.0	23.9	29.4	9/15	27.2	13.9	20.5
7/17	35.0	17.2	24.5	9/16	29.4	16.1	22.5
7/18	36.1	25.6	30.6	9/17	30.6	18.9	24.1
7/19	36.1	25.6	31.8	9/18	28.3	17.8	23.1
7/20	38.9	28.3	34.4	9/19	35.0	17.8	25.6
7/21	38.9	27.2	34.2	9/20	36.1	21.1	28.5
7/22	36.7	25.0	31.5	9/21	36.1	22.8	29.4
7/23	32.8	22.8	28.2	9/22	29.4	18.3	23.5
7/24	29.4	17.8	24.6	9/23	26.7	14.4	19.8
7/25	30.0	18.9	25.9	9/24	18.3	7	6.4
7/26	33.3	18.3	28.2	9/25	24.4	15.0	18.8
7/27	35.0	24.4	29.9	9/26	27.2	13.3	19.6
7/28	36.1	24.4	30.9	9/27	30.6	15.6	23.5
7/29	36.1	22.8	30.4	9/28	35.6	20.6	28.0
7/30	36.1	24.4	30.9	9/29	35.6	25.6	30.5
7/31	37.8	25.0	31.0	9/30	nr	nr	nr

YEAR - 1991							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	30.6	17.8	24.6	8/1	32.8	16.1	24.9
6/2	27.8	16.7	22.3	8/2	32.2	15.6	23.8
6/3	26.7	11.7	19.0	8/3	32.2	16.7	23.4
6/4	27.2	13.9	20.7	8/4	28.9	16.1	21.6
6/5	26.7	14.4	20.0	8/5	30.0	15.0	22.1
6/6	24.4	10.0	18.3	8/6	26.7	13.3	21.3
6/7	30.6	15.0	23.2	8/7	28.9	15.6	22.5
6/8	32.2	18.9	25.6	8/8	34.4	20.0	26.9
6/9	33.9	20.0	26.9	8/9	34.4	21.7	27.4
6/10	35.0	21.1	28.1	8/10	35.6	20.0	27.2
6/11	33.9	21.7	27.6	8/11	35.6	23.3	28.8
6/12	28.9	17.2	23.3	8/12	35.0	20.6	27.8
6/13	28.3	13.9	21.1	8/13	32.8	21.1	24.5
6/14	29.4	13.3	21.8	8/14	33.9	21.7	28.0
6/15	28.3	16.7	22.6	8/15	27.2	16.1	20.3
6/16	26.7	12.2	20.0	8/16	31.7	16.7	24.2
6/17	27.8	12.8	21.2	8/17	31.7	17.8	24.4
6/18	28.3	15.0	21.9	8/18	31.7	15.6	24.1
6/19	21.7	8.3	14.9	8/19	32.2	16.7	24.1
6/20	25.6	9.4	18.4	8/20	33.3	18.3	25.1
6/21	25.6	11.7	19.3	8/21	33.3	18.9	24.8
6/22	25.6	8.3	18.5	8/22	33.3	19.4	24.7
6/23	23.3	7.8	16.3	8/23	35.6	19.4	25.7
6/24	21.7	7.2	15.4	8/24	34.4	22.2	28.2
6/25	23.9	nr	16.9	8/25	30.6	16.7	22.8
6/26	23.3	11.1	17.3	8/26	24.4	14.4	19.0
6/27	18.9	11.1	14.8	8/27	20.0	9.4	16.0
6/28	14.4	11.1	12.6	8/28	26.1	13.9	19.9
6/29	22.8	11.1	16.7	8/29	31.7	18.3	26.0
6/30	31.1	15.0	23.4	8/30	29.4	20.0	24.3
7/1	nr	nr	nr	8/31	32.2	16.7	25.0
7/2	nr	nr	nr	9/1	34.4	20.0	26.0
7/3	nr	nr	nr	9/2	38.3	21.7	30.3
7/4	nr	nr	nr	9/3	38.9	26.1	31.2
7/5	nr	nr	nr	9/4	40.0	25.0	30.8
7/6	nr	nr	nr	9/5	37.2	25.6	30.4
7/7	nr	nr	nr	9/6	33.3	21.7	26.5
7/8	32.2	21.1	27.2	9/7	30.0	14.4	21.9
7/9	31.1	16.7	24.2	9/8	30.0	17.8	23.6
7/10	34.4	20.0	28.1	9/9	23.9	10.0	17.5
7/11	33.9	20.6	27.2	9/10	22.2	12.2	17.1
7/12	35.0	23.9	29.7	9/11	31.1	16.1	24.6
7/13	33.3	16.1	25.5	9/12	27.8	22.2	23.6
7/14	31.1	15.0	22.6	9/13	31.7	16.7	24.4
7/15	30.0	18.3	23.9	9/14	32.2	14.4	24.6
7/16	28.3	15.0	22.3	9/15	34.4	18.9	27.0
7/17	29.4	17.8	24.0	9/16	36.1	22.2	27.4
7/18	33.3	18.9	25.1	9/17	39.4	25.0	31.8
7/19	26.7	16.7	22.3	9/18	30.0	24.4	26.4
7/20	29.4	16.1	23.3	9/19	35.0	23.3	30.1
7/21	33.3	16.7	24.7	9/20	33.3	20.6	26.5
7/22	34.4	20.6	27.4	9/21	nr	nr	nr
7/23	34.4	20.6	27.9	9/22	nr	nr	nr
7/24	33.9	19.4	27.0	9/23	35.6	33.3	34.4
7/25	35.0	18.3	26.9	9/24	34.4	26.1	31.5
7/26	36.7	22.8	29.6	9/25	32.8	25.6	28.1
7/27	36.1	21.1	29.1	9/26	32.8	20.6	25.8
7/28	35.6	20.0	28.4	9/27	30.6	16.1	23.6
7/29	37.8	21.7	30.8	9/28	32.2	20.0	25.5
7/30	40.6	25.0	32.3	9/29	36.1	21.1	30.7
7/31	36.1	21.7	29.4	9/30	nr	nr	nr

APPENDIX D. (continued). Air temperature (Celsius) as measured at California Department of Forestry Cohasset Fire Station (CST), Elevation 1600 Feet, Latitude 39.9000° N, Longitude 121.7000° W, for period June 1 through September 30, 1984-2003.

YEAR - 1992							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	33.9	18.9	27.1	8/1	35.6	20.0	28.3
6/2	35.0	20.0	27.8	8/2	36.1	22.2	29.6
6/3	32.8	21.1	25.8	8/3	35.0	23.3	29.0
6/4	35.6	21.1	28.9	8/4	34.4	22.2	28.1
6/5	33.9	21.7	26.9	8/5	34.4	18.3	26.7
6/6	nr	nr	nr	8/6	33.3	18.9	26.5
6/7	nr	nr	nr	8/7	32.2	19.4	25.7
6/8	30.6	22.2	27.6	8/8	31.7	15.6	24.3
6/9	29.4	14.4	23.0	8/9	36.1	19.4	28.4
6/10	26.7	15.6	21.3	8/10	39.4	23.9	31.9
6/11	20.6	10.0	14.9	8/11	32.2	27.2	29.3
6/12	19.4	9.4	12.6	8/12	39.4	27.8	33.2
6/13	22.8	8.3	14.1	8/13	37.2	25.0	31.3
6/14	24.4	7.8	17.0	8/14	38.3	26.1	32.2
6/15	18.9	8.3	14.6	8/15	38.3	20.0	28.7
6/16	25.6	11.1	18.9	8/16	36.1	26.1	31.2
6/17	30.0	15.6	22.6	8/17	38.3	27.2	32.1
6/18	23.3	18.3	21.2	8/18	30.6	23.3	28.3
6/19	34.4	17.2	26.1	8/19	39.4	26.1	32.5
6/20	28.9	21.7	24.7	8/20	37.8	23.3	29.3
6/21	41.1	27.2	34.7	8/21	30.6	16.1	24.0
6/22	33.3	20.0	27.6	8/22	27.8	12.2	19.9
6/23	32.2	23.3	29.0	8/23	31.1	17.2	24.2
6/24	31.1	16.7	23.5	8/24	32.8	18.9	24.9
6/25	31.1	18.3	24.1	8/25	33.3	18.9	27.4
6/26	30.0	13.9	22.3	8/26	35.6	21.1	29.0
6/27	29.4	17.2	23.6	8/27	37.2	23.9	30.0
6/28	21.1	12.2	16.8	8/28	36.1	22.8	28.9
6/29	16.1	11.7	13.2	8/29	31.1	16.1	23.3
6/30	21.1	12.2	15.2	8/30	25.0	13.3	17.5
7/1	nr	nr	nr	8/31	27.8	12.8	20.1
7/2	26.7	15.0	19.6	9/1	30.0	16.7	22.0
7/3	30.0	17.8	22.7	9/2	28.9	15.0	21.5
7/4	21.7	12.2	16.3	9/3	25.6	15.0	19.0
7/5	26.1	14.4	20.8	9/4	31.1	12.2	22.0
7/6	28.9	15.6	24.1	9/5	29.4	17.2	23.7
7/7	29.4	14.4	22.0	9/6	30.6	16.1	23.8
7/8	33.3	21.1	27.1	9/7	32.2	18.9	25.5
7/9	33.9	24.4	28.4	9/8	33.9	18.9	24.5
7/10	33.3	22.2	29.3	9/9	nr	nr	nr
7/11	26.7	22.2	24.6	9/10	nr	nr	nr
7/12	27.8	17.8	23.3	9/11	28.3	17.8	23.9
7/13	32.2	18.9	25.8	9/12	31.1	15.6	21.4
7/14	34.4	21.1	28.0	9/13	32.2	18.3	24.4
7/15	32.2	22.2	26.5	9/14	28.3	19.4	23.9
7/16	36.7	22.2	29.0	9/15	27.2	15.0	20.4
7/17	35.6	21.7	29.6	9/16	32.2	18.3	24.9
7/18	33.9	17.8	25.8	9/17	32.2	16.1	24.9
7/19	34.4	20.6	27.3	9/18	34.4	20.6	27.6
7/20	30.0	13.3	21.7	9/19	32.2	20.6	25.7
7/21	32.8	16.7	25.4	9/20	36.1	16.1	27.8
7/22	29.4	15.0	22.4	9/21	35.0	21.1	27.7
7/23	32.2	17.2	27.4	9/22	32.8	21.7	26.3
7/24	33.3	18.9	25.1	9/23	29.4	18.3	23.1
7/25	33.9	23.3	27.6	9/24	26.1	10.6	19.9
7/26	35.0	23.9	28.7	9/25	30.0	15.0	22.7
7/27	38.3	25.6	31.1	9/26	36.7	21.1	27.7
7/28	38.3	24.4	31.8	9/27	35.0	21.7	27.6
7/29	36.7	25.6	30.6	9/28	35.0	15.0	27.3
7/30	34.4	22.2	27.0	9/29	34.4	16.1	26.2
7/31	33.9	18.9	25.4	9/30	nr	nr	nr

YEAR - 1993							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	21.1	11.1	15.6	8/1	nr	nr	nr
6/2	21.7	10.6	15.5	8/2	40.0	27.8	34.2
6/3	21.1	10.0	15.1	8/3	37.8	23.3	29.6
6/4	13.9	8.3	10.6	8/4	36.7	22.2	28.5
6/5	17.8	8.3	11.3	8/5	35.6	18.9	28.4
6/6	12.2	8.3	9.9	8/6	33.9	22.8	27.9
6/7	20.6	10.0	13.9	8/7	30.0	17.8	23.3
6/8	26.1	11.7	19.7	8/8	30.6	13.9	22.9
6/9	30.0	17.8	23.2	8/9	31.7	18.3	24.5
6/10	25.6	15.6	21.0	8/10	29.4	14.4	22.0
6/11	25.6	10.6	18.5	8/11	26.1	10.6	18.4
6/12	28.3	11.7	20.8	8/12	30.0	14.4	22.6
6/13	31.7	17.2	24.1	8/13	30.6	16.1	23.5
6/14	32.2	19.4	25.3	8/14	30.0	13.3	22.1
6/15	30.0	15.6	22.5	8/15	26.1	11.7	17.4
6/16	30.6	17.2	23.7	8/16	28.3	11.1	20.2
6/17	32.2	18.3	25.7	8/17	31.7	16.7	23.9
6/18	35.6	23.3	28.8	8/18	31.7	20.6	25.4
6/19	34.4	23.9	28.6	8/19	24.4	15.6	20.0
6/20	33.3	21.7	27.3	8/20	27.2	13.9	19.1
6/21	25.6	14.4	20.2	8/21	33.9	17.2	26.0
6/22	26.7	12.2	21.4	8/22	35.0	21.7	27.8
6/23	30.0	15.0	23.4	8/23	35.6	22.2	27.6
6/24	35.0	21.1	29.0	8/24	33.3	17.2	25.2
6/25	35.6	24.4	30.0	8/25	31.1	16.1	23.8
6/26	36.1	24.4	29.7	8/26	33.3	20.0	26.8
6/27	31.7	20.0	25.9	8/27	36.1	22.2	28.5
6/28	28.9	12.8	20.8	8/28	35.6	23.9	29.3
6/29	32.2	18.3	24.7	8/29	33.9	19.4	26.8
6/30	34.4	20.0	27.0	8/30	30.0	18.3	23.6
7/1	nr	nr	nr	8/31	31.7	15.0	23.2
7/2	31.1	19.4	24.6	9/1	35.0	20.6	26.1
7/3	31.7	17.8	23.7	9/2	36.1	23.3	28.7
7/4	32.8	18.3	26.3	9/3	37.8	24.4	30.0
7/5	33.9	20.6	27.8	9/4	35.0	22.8	28.4
7/6	36.1	21.7	28.5	9/5	30.0	15.6	22.9
7/7	34.4	20.6	27.5	9/6	30.6	15.0	22.3
7/8	35.0	20.0	27.7	9/7	33.9	17.8	25.9
7/9	33.9	21.7	26.5	9/8	37.2	21.7	28.9
7/10	35.0	17.2	26.9	9/9	36.1	22.2	29.1
7/11	34.4	19.4	27.8	9/10	36.7	22.2	27.6
7/12	33.3	20.6	27.6	9/11	33.9	20.0	26.1
7/13	31.7	18.3	25.7	9/12	31.7	15.6	23.5
7/14	28.9	14.4	21.0	9/13	31.7	17.2	23.8
7/15	28.9	15.0	19.6	9/14	27.8	13.3	21.0
7/16	30.0	16.1	23.1	9/15	24.4	9.4	17.0
7/17	31.1	16.1	24.5	9/16	23.3	11.1	16.8
7/18	32.8	19.4	25.9	9/17	23.3	7.8	15.2
7/19	30.0	16.7	24.4	9/18	26.1	11.7	18.0
7/20	28.9	14.4	22.3	9/19	26.7	14.4	20.0
7/21	29.4	14.4	22.3	9/20	29.4	16.1	21.8
7/22	31.7	18.3	25.0	9/21	28.3	15.6	21.4
7/23	32.2	18.3	26.0	9/22	27.8	13.3	20.0
7/24	35.0	20.6	27.5	9/23	30.0	16.7	22.6
7/25	32.2	19.4	25.7	9/24	33.3	19.4	25.2
7/26	nr	nr	nr	9/25	32.8	19.4	25.4
7/27	nr	nr	nr	9/26	34.4	20.0	26.3
7/28	nr	nr	nr	9/27	34.4	22.2	27.1
7/29	nr	nr	nr	9/28	35.0	22.8	27.8
7/30	nr	nr	nr	9/29	37.2	22.8	28.2
7/31	nr	nr	nr	9/30	nr	nr	nr

APPENDIX D. (continued). Air temperature (Celsius) as measured at California Department of Forestry Cohasset Fire Station (CST), Elevation 1600 Feet, Latitude 39.9000° N, Longitude 121.7000° W, for period June 1 through September 30, 1984-2003.

YEAR - 1994 (NO RECORD)							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	nr	nr	nr	8/1	nr	nr	nr
6/2	nr	nr	nr	8/2	nr	nr	nr
6/3	nr	nr	nr	8/3	nr	nr	nr
6/4	nr	nr	nr	8/4	nr	nr	nr
6/5	nr	nr	nr	8/5	nr	nr	nr
6/6	nr	nr	nr	8/6	nr	nr	nr
6/7	nr	nr	nr	8/7	nr	nr	nr
6/8	nr	nr	nr	8/8	nr	nr	nr
6/9	nr	nr	nr	8/9	nr	nr	nr
6/10	nr	nr	nr	8/10	nr	nr	nr
6/11	nr	nr	nr	8/11	nr	nr	nr
6/12	nr	nr	nr	8/12	nr	nr	nr
6/13	nr	nr	nr	8/13	nr	nr	nr
6/14	nr	nr	nr	8/14	nr	nr	nr
6/15	nr	nr	nr	8/15	nr	nr	nr
6/16	nr	nr	nr	8/16	nr	nr	nr
6/17	nr	nr	nr	8/17	nr	nr	nr
6/18	nr	nr	nr	8/18	nr	nr	nr
6/19	nr	nr	nr	8/19	nr	nr	nr
6/20	nr	nr	nr	8/20	nr	nr	nr
6/21	nr	nr	nr	8/21	nr	nr	nr
6/22	nr	nr	nr	8/22	nr	nr	nr
6/23	nr	nr	nr	8/23	nr	nr	nr
6/24	nr	nr	nr	8/24	nr	nr	nr
6/25	nr	nr	nr	8/25	nr	nr	nr
6/26	nr	nr	nr	8/26	nr	nr	nr
6/27	nr	nr	nr	8/27	nr	nr	nr
6/28	nr	nr	nr	8/28	nr	nr	nr
6/29	nr	nr	nr	8/29	nr	nr	nr
6/30	nr	nr	nr	8/30	nr	nr	nr
7/1	nr	nr	nr	8/31	nr	nr	nr
7/2	nr	nr	nr	9/1	nr	nr	nr
7/3	nr	nr	nr	9/2	nr	nr	nr
7/4	nr	nr	nr	9/3	nr	nr	nr
7/5	nr	nr	nr	9/4	nr	nr	nr
7/6	nr	nr	nr	9/5	nr	nr	nr
7/7	nr	nr	nr	9/6	nr	nr	nr
7/8	nr	nr	nr	9/7	nr	nr	nr
7/9	nr	nr	nr	9/8	nr	nr	nr
7/10	nr	nr	nr	9/9	nr	nr	nr
7/11	nr	nr	nr	9/10	nr	nr	nr
7/12	nr	nr	nr	9/11	nr	nr	nr
7/13	nr	nr	nr	9/12	nr	nr	nr
7/14	nr	nr	nr	9/13	nr	nr	nr
7/15	nr	nr	nr	9/14	nr	nr	nr
7/16	nr	nr	nr	9/15	nr	nr	nr
7/17	nr	nr	nr	9/16	nr	nr	nr
7/18	nr	nr	nr	9/17	nr	nr	nr
7/19	nr	nr	nr	9/18	nr	nr	nr
7/20	nr	nr	nr	9/19	nr	nr	nr
7/21	nr	nr	nr	9/20	nr	nr	nr
7/22	nr	nr	nr	9/21	nr	nr	nr
7/23	nr	nr	nr	9/22	nr	nr	nr
7/24	nr	nr	nr	9/23	nr	nr	nr
7/25	nr	nr	nr	9/24	nr	nr	nr
7/26	nr	nr	nr	9/25	nr	nr	nr
7/27	nr	nr	nr	9/26	nr	nr	nr
7/28	nr	nr	nr	9/27	nr	nr	nr
7/29	nr	nr	nr	9/28	nr	nr	nr
7/30	nr	nr	nr	9/29	nr	nr	nr
7/31	nr	nr	nr	9/30	nr	nr	nr

YEAR - 1995							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	31.7	14.4	24.9	8/1	38.9	26.7	32.5
6/2	20.0	8.9	14.4	8/2	38.3	25.6	31.6
6/3	27.2	11.1	20.1	8/3	38.3	26.1	31.8
6/4	24.4	13.3	19.1	8/4	36.7	23.9	29.6
6/5	20.0	8.3	14.6	8/5	35.0	22.8	28.1
6/6	18.9	7.8	14.0	8/6	33.9	17.2	26.2
6/7	21.7	10.0	15.7	8/7	31.7	18.9	25.1
6/8	25.0	11.7	18.7	8/8	35.0	18.3	27.5
6/9	23.9	9.4	18.0	8/9	34.4	21.7	27.6
6/10	26.1	14.4	20.1	8/10	28.3	17.2	22.4
6/11	26.1	11.7	19.0	8/11	30.6	10.6	21.5
6/12	27.8	12.2	20.5	8/12	33.3	18.3	26.1
6/13	26.1	13.3	20.8	8/13	35.6	22.2	28.1
6/14	15.6	10.6	12.2	8/14	36.1	23.3	29.1
6/15	15.0	7.8	11.1	8/15	35.0	23.3	28.5
6/16	20.6	6.7	12.3	8/16	28.3	15.6	22.7
6/17	19.4	11.7	14.2	8/17	26.7	9.4	18.1
6/18	19.4	11.1	14.1	8/18	33.3	15.0	25.5
6/19	22.8	8.3	15.7	8/19	36.7	18.3	27.8
6/20	25.0	10.0	18.5	8/20	38.3	23.3	30.6
6/21	28.9	14.4	22.3	8/21	36.1	23.3	29.6
6/22	32.8	18.3	26.1	8/22	36.1	21.1	28.1
6/23	36.7	22.2	29.3	8/23	35.6	23.3	29.2
6/24	37.8	23.9	30.7	8/24	31.1	16.7	24.4
6/25	38.3	26.1	31.7	8/25	30.6	16.7	23.0
6/26	36.1	26.1	30.5	8/26	30.0	13.3	22.2
6/27	33.3	20.0	27.0	8/27	30.0	16.1	22.8
6/28	35.0	19.4	26.9	8/28	28.3	13.9	21.4
6/29	32.2	20.6	25.9	8/29	30.0	15.0	22.2
6/30	30.0	15.0	22.8	8/30	32.2	18.3	24.6
7/1	31.1	16.1	23.1	8/31	33.3	20.0	25.6
7/2	30.6	18.3	24.4	9/1	32.8	17.8	25.5
7/3	29.4	13.3	22.4	9/2	32.2	15.0	24.3
7/4	33.9	16.7	25.9	9/3	29.4	13.9	22.0
7/5	32.8	20.6	27.1	9/4	28.9	14.4	21.8
7/6	29.4	18.3	23.8	9/5	35.0	16.7	25.3
7/7	30.0	18.9	24.8	9/6	34.4	18.9	26.4
7/8	30.0	21.1	25.0	9/7	33.3	21.7	26.7
7/9	27.2	16.7	22.3	9/8	33.9	21.7	26.6
7/10	25.6	13.9	20.2	9/9	31.1	18.3	23.9
7/11	25.0	11.1	19.0	9/10	30.6	15.0	22.6
7/12	23.9	8.9	17.0	9/11	31.7	17.2	24.0
7/13	31.7	15.6	24.3	9/12	33.9	20.0	26.7
7/14	35.6	21.7	28.3	9/13	33.9	19.4	26.1
7/15	37.2	23.3	30.0	9/14	35.6	18.9	26.0
7/16	40.6	24.4	32.5	9/15	31.1	16.1	25.0
7/17	30.0	19.4	24.4	9/16	30.0	15.0	22.4
7/18	32.8	20.0	26.7	9/17	33.3	15.0	23.5
7/19	32.8	20.0	26.5	9/18	37.8	20.6	29.1
7/20	31.7	18.9	25.0	9/19	35.0	22.2	27.9
7/21	29.4	16.1	23.1	9/20	35.0	23.9	28.7
7/22	29.4	12.8	22.2	9/21	35.0	22.2	27.7
7/23	30.6	15.0	22.8	9/22	31.1	18.3	23.5
7/24	31.7	17.2	23.2	9/23	28.3	13.3	21.6
7/25	31.1	20.0	26.0	9/24	27.8	15.0	21.2
7/26	34.4	18.9	26.0	9/25	25.6	11.7	19.1
7/27	35.6	22.8	28.5	9/26	26.7	15.0	20.4
7/28	37.2	23.3	30.9	9/27	26.1	15.6	21.3
7/29	32.2	20.6	26.0	9/28	22.2	10.0	16.1
7/30	35.0	22.8	30.3	9/29	26.1	11.1	18.8
7/31	35.6	26.7	30.0	9/30	17.2	17.2	17.2

APPENDIX D. (continued). Air temperature (Celsius) as measured at California Department of Forestry Cohasset Fire Station (CST), Elevation 1600 Feet, Latitude 39.9000° N, Longitude 121.7000° W, for period June 1 through September 30, 1984-2003.

YEAR - 1996							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	nr	nr	nr	8/1	35.6	25.0	29.6
6/2	nr	nr	nr	8/2	33.9	20.0	27.1
6/3	nr	nr	nr	8/3	30.0	17.2	23.5
6/4	nr	nr	nr	8/4	32.2	20.6	26.2
6/5	nr	nr	nr	8/5	30.0	17.2	24.1
6/6	nr	nr	nr	8/6	32.8	12.2	23.3
6/7	nr	nr	nr	8/7	33.3	19.4	26.4
6/8	nr	nr	nr	8/8	40.0	22.2	30.9
6/9	nr	nr	nr	8/9	40.0	27.8	33.3
6/10	nr	nr	nr	8/10	41.1	28.3	34.3
6/11	nr	nr	nr	8/11	40.6	28.9	34.5
6/12	nr	nr	nr	8/12	39.4	28.3	33.5
6/13	nr	nr	nr	8/13	40.0	27.8	34.1
6/14	nr	nr	nr	8/14	38.9	26.7	32.5
6/15	nr	nr	nr	8/15	35.6	25.6	30.3
6/16	nr	nr	nr	8/16	36.7	25.6	30.2
6/17	nr	nr	nr	8/17	32.2	21.1	26.7
6/18	nr	nr	nr	8/18	30.6	16.7	23.6
6/19	nr	nr	nr	8/19	27.8	17.2	22.2
6/20	nr	nr	nr	8/20	27.8	12.2	21.1
6/21	nr	nr	nr	8/21	33.9	19.4	26.1
6/22	nr	nr	nr	8/22	34.4	22.2	28.0
6/23	nr	nr	nr	8/23	37.2	22.2	29.3
6/24	nr	nr	nr	8/24	36.7	26.1	30.1
6/25	nr	nr	nr	8/25	31.7	17.2	25.3
6/26	nr	nr	nr	8/26	27.8	15.0	21.3
6/27	nr	nr	nr	8/27	27.2	10.0	18.0
6/28	nr	nr	nr	8/28	34.4	18.9	27.0
6/29	nr	nr	nr	8/29	35.6	23.3	29.4
6/30	nr	nr	nr	8/30	37.8	24.4	30.9
7/1	36.1	26.1	30.8	8/31	33.3	21.7	27.7
7/2	35.6	26.7	30.5	9/1	33.9	21.1	26.8
7/3	31.7	21.1	26.5	9/2	32.2	19.4	25.5
7/4	30.0	17.8	24.2	9/3	30.0	17.8	23.6
7/5	35.0	18.3	27.4	9/4	25.6	12.8	19.0
7/6	35.0	23.3	28.9	9/5	27.8	12.2	20.6
7/7	35.6	23.9	29.6	9/6	29.4	18.3	23.7
7/8	35.0	20.0	28.1	9/7	31.1	20.6	25.3
7/9	35.0	22.8	29.1	9/8	23.9	18.9	22.7
7/10	36.7	23.9	30.3	9/9	32.8	22.8	27.2
7/11	34.4	23.9	29.2	9/10	33.3	23.3	27.6
7/12	35.0	24.4	28.8	9/11	27.8	19.4	24.4
7/13	35.6	25.6	30.1	9/12	23.9	11.7	18.5
7/14	35.6	25.6	30.3	9/13	19.4	12.8	15.3
7/15	30.6	20.6	25.6	9/14	25.6	12.8	18.3
7/16	30.0	16.1	23.4	9/15	22.2	12.8	16.3
7/17	27.8	16.7	22.6	9/16	23.9	11.1	17.4
7/18	28.9	14.4	21.9	9/17	25.0	17.8	21.2
7/19	32.8	18.3	25.7	9/18	27.2	14.4	20.9
7/20	36.7	21.7	29.0	9/19	28.3	16.7	22.5
7/21	36.7	24.4	30.4	9/20	30.6	20.0	24.5
7/22	37.2	24.4	30.3	9/21	30.0	19.4	24.4
7/23	32.2	23.3	27.7	9/22	28.9	16.1	21.9
7/24	35.6	23.9	29.6	9/23	28.3	17.8	22.4
7/25	37.2	24.4	31.2	9/24	28.3	14.4	22.0
7/26	36.7	25.6	30.2	9/25	30.0	17.8	23.1
7/27	33.3	21.7	28.6	9/26	30.6	19.4	25.3
7/28	36.1	22.2	29.5	9/27	32.8	21.1	26.0
7/29	37.8	27.8	32.4	9/28	32.2	20.6	25.7
7/30	37.8	26.1	32.1	9/29	31.7	19.4	25.6
7/31	36.7	26.7	31.6	9/30	23.3	23.3	23.3

YEAR - 1997							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	26.1	15.6	20.9	8/1	32.2	18.3	25.8
6/2	27.2	16.1	22.0	8/2	33.3	21.7	26.8
6/3	20.6	12.8	15.8	8/3	34.4	21.1	28.6
6/4	22.2	12.2	16.6	8/4	36.1	23.3	29.6
6/5	26.1	12.2	19.9	8/5	38.9	27.2	32.6
6/6	30.0	17.8	24.2	8/6	39.4	28.3	33.3
6/7	31.1	20.0	24.8	8/7	40.6	30.0	34.8
6/8	29.4	17.8	24.0	8/8	38.3	26.7	32.7
6/9	26.7	16.7	21.7	8/9	30.6	18.3	25.3
6/10	28.3	17.8	23.2	8/10	26.1	15.0	19.9
6/11	25.6	14.4	20.9	8/11	29.4	16.1	22.5
6/12	24.4	13.3	18.0	8/12	31.1	19.4	24.9
6/13	28.3	12.8	20.9	8/13	33.3	21.7	27.6
6/14	31.7	16.1	24.2	8/14	35.0	22.2	28.3
6/15	31.7	16.1	23.9	8/15	33.3	19.4	26.8
6/16	33.3	20.0	26.6	8/16	30.0	15.6	22.4
6/17	32.8	22.2	28.0	8/17	27.2	13.3	20.9
6/18	32.2	23.3	28.0	8/18	29.4	15.6	22.8
6/19	33.9	21.1	27.6	8/19	31.1	20.0	23.7
6/20	29.4	18.3	24.3	8/20	25.6	16.1	19.5
6/21	27.8	15.0	21.9	8/21	30.6	18.3	24.5
6/22	26.1	11.7	19.5	8/22	28.9	19.4	24.5
6/23	28.9	14.4	22.8	8/23	27.2	15.0	21.9
6/24	33.9	21.1	27.0	8/24	26.7	16.7	21.5
6/25	33.9	23.3	28.0	8/25	28.9	16.7	22.5
6/26	30.6	19.4	24.8	8/26	27.8	18.9	22.8
6/27	27.2	14.4	21.2	8/27	27.8	17.8	22.4
6/28	23.3	11.1	17.6	8/28	27.8	13.9	21.8
6/29	23.3	11.7	18.0	8/29	29.4	17.2	23.4
6/30	21.7	10.6	15.5	8/30	30.0	16.1	23.3
7/1	26.1	12.8	19.7	8/31	30.0	16.1	23.4
7/2	30.0	13.9	22.7	9/1	31.1	18.3	24.7
7/3	33.3	21.1	27.4	9/2	28.9	20.0	24.4
7/4	32.8	22.2	27.6	9/3	31.7	20.6	26.0
7/5	31.1	16.7	25.1	9/4	33.3	22.8	28.1
7/6	33.3	20.6	27.2	9/5	33.3	23.3	28.1
7/7	37.2	22.8	30.0	9/6	32.2	18.3	25.6
7/8	38.3	25.0	30.4	9/7	32.2	16.1	24.7
7/9	33.9	20.6	27.8	9/8	32.2	21.1	26.4
7/10	30.0	16.7	23.7	9/9	30.0	21.7	25.7
7/11	30.6	18.3	24.7	9/10	26.1	16.7	21.5
7/12	33.9	18.3	27.1	9/11	28.9	13.3	21.6
7/13	33.3	19.4	27.0	9/12	28.9	17.8	23.2
7/14	33.9	18.9	27.6	9/13	27.2	16.1	22.0
7/15	34.4	21.1	28.1	9/14	22.8	11.7	16.0
7/16	32.2	21.7	26.9	9/15	22.2	10.0	16.2
7/17	29.4	15.6	23.2	9/16	26.7	13.3	20.0
7/18	33.3	17.2	26.7	9/17	22.2	15.0	18.7
7/19	36.1	23.3	29.4	9/18	23.9	13.3	18.6
7/20	34.4	21.1	28.5	9/19	28.3	15.0	21.6
7/21	36.7	22.8	29.5	9/20	29.4	20.0	24.9
7/22	34.4	22.8	28.6	9/21	31.1	22.2	25.7
7/23	29.4	nr	22.9	9/22	31.7	21.7	25.8
7/24	32.2	21.1	26.8	9/23	33.9	23.3	28.2
7/25	35.6	22.8	29.2	9/24	35.0	25.0	29.4
7/26	35.6	23.9	29.5	9/25	31.7	22.2	26.9
7/27	32.8	18.3	26.1	9/26	26.1	14.4	20.3
7/28	33.3	21.1	27.4	9/27	31.7	17.2	24.2
7/29	33.3	20.6	27.1	9/28	33.9	22.2	27.7
7/30	29.4	16.1	23.8	9/29	32.8	23.3	27.4
7/31	31.7	16.1	24.2	9/30	23.9	23.9	23.9

APPENDIX D. (continued). Air temperature (Celsius) as measured at California Department of Forestry Cohasset Fire Station (CST), Elevation 1600 Feet, Latitude 39.9000° N, Longitude 121.7000° W, for period June 1 through September 30, 1984-2003.

YEAR - 1998							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	25.0	16.1	20.4	8/1	36.7	22.2	29.8
6/2	20.6	12.2	16.8	8/2	38.3	26.1	31.7
6/3	16.7	11.1	13.7	8/3	40.6	28.3	34.3
6/4	22.2	12.2	16.7	8/4	42.8	29.4	35.5
6/5	23.9	13.3	18.1	8/5	40.6	30.0	35.0
6/6	25.0	13.9	18.0	8/6	37.2	26.1	31.4
6/7	15.6	12.8	13.7	8/7	32.8	22.8	27.2
6/8	23.9	13.3	17.0	8/8	32.2	17.8	25.3
6/9	27.2	15.0	20.7	8/9	32.8	19.4	26.5
6/10	20.0	13.3	16.7	8/10	35.6	23.3	29.1
6/11	17.8	12.2	15.1	8/11	37.2	25.0	31.2
6/12	19.4	13.9	16.7	8/12	39.4	26.7	32.9
6/13	23.9	13.9	18.4	8/13	38.3	27.8	32.6
6/14	30.6	17.2	24.0	8/14	37.8	25.0	31.9
6/15	30.0	21.1	25.6	8/15	34.4	22.8	29.1
6/16	25.0	16.7	21.4	8/16	31.7	18.3	25.2
6/17	29.4	17.8	23.1	8/17	28.3	15.0	22.1
6/18	28.3	17.2	23.2	8/18	27.2	14.4	20.6
6/19	28.3	16.7	22.9	8/19	28.3	14.4	21.2
6/20	26.7	16.1	21.3	8/20	27.8	15.6	21.5
6/21	26.1	13.9	20.1	8/21	29.4	17.2	23.2
6/22	25.6	15.6	20.2	8/22	31.7	21.1	25.8
6/23	25.0	14.4	20.2	8/23	32.8	19.4	25.8
6/24	25.6	14.4	20.2	8/24	32.8	22.2	27.1
6/25	23.3	13.9	17.2	8/25	31.1	20.0	25.3
6/26	26.7	11.1	19.1	8/26	31.7	15.6	24.1
6/27	28.9	17.8	23.6	8/27	33.9	23.3	28.4
6/28	28.9	20.0	24.1	8/28	35.6	23.9	29.9
6/29	nr	nr	nr	8/29	37.2	26.1	31.3
6/30	nr	nr	nr	8/30	37.8	26.1	31.3
7/1	nr	nr	nr	8/31	41.1	26.7	33.8
7/2	nr	nr	nr	9/1	41.1	27.2	34.1
7/3	28.3	21.7	25.3	9/2	41.7	28.9	33.8
7/4	29.4	19.4	24.2	9/3	37.8	27.8	32.3
7/5	31.7	21.1	26.1	9/4	35.0	25.0	30.6
7/6	32.2	22.2	27.0	9/5	27.2	22.2	24.2
7/7	33.3	24.4	28.2	9/6	32.8	22.8	27.6
7/8	32.2	21.7	27.1	9/7	33.9	24.4	28.9
7/9	30.0	20.6	25.2	9/8	31.1	23.3	26.8
7/10	26.7	12.8	20.8	9/9	23.3	13.3	18.5
7/11	31.1	16.7	23.9	9/10	28.3	13.9	21.7
7/12	33.9	21.7	27.3	9/11	33.9	20.0	26.6
7/13	32.8	22.8	27.6	9/12	33.9	21.1	28.2
7/14	33.3	20.0	27.3	9/13	35.6	23.9	30.2
7/15	37.2	24.4	30.7	9/14	35.0	25.0	29.3
7/16	37.8	25.0	31.8	9/15	34.4	23.9	28.6
7/17	38.3	27.2	32.2	9/16	34.4	22.8	27.6
7/18	38.9	26.7	32.7	9/17	27.8	16.7	23.1
7/19	38.9	27.2	32.9	9/18	26.1	12.8	19.7
7/20	35.6	26.1	30.2	9/19	27.2	17.2	22.2
7/21	32.2	20.6	26.9	9/20	27.8	16.7	22.1
7/22	26.7	19.4	23.8	9/21	27.2	15.6	21.2
7/23	31.7	20.6	25.9	9/22	24.4	14.4	19.4
7/24	32.2	19.4	25.8	9/23	22.2	13.3	18.1
7/25	34.4	22.8	27.4	9/24	23.3	13.3	18.4
7/26	37.8	25.0	31.0	9/25	21.7	12.8	15.8
7/27	37.8	25.6	31.6	9/26	20.0	10.6	14.1
7/28	35.0	24.4	29.6	9/27	16.7	11.7	13.1
7/29	30.0	16.1	23.5	9/28	23.9	11.1	17.5
7/30	26.1	12.2	20.0	9/29	23.3	15.6	18.9
7/31	28.3	12.8	21.8	9/30	15.0	15.0	15.0

YEAR - 1999							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	20.0	9.4	15.2	8/1	30.0	13.9	22.9
6/2	13.9	6.7	9.2	8/2	31.7	16.1	24.7
6/3	11.7	5.6	8.6	8/3	32.8	20.0	26.3
6/4	21.7	7.2	15.1	8/4	32.2	18.9	26.3
6/5	25.0	14.4	19.4	8/5	26.1	13.3	20.8
6/6	23.9	13.3	18.4	8/6	22.2	13.3	17.1
6/7	21.7	9.4	15.9	8/7	25.6	13.3	19.8
6/8	23.9	8.3	16.9	8/8	26.7	15.0	21.0
6/9	25.0	13.9	19.2	8/9	27.8	15.6	21.7
6/10	28.3	13.9	22.1	8/10	23.9	17.2	19.8
6/11	28.9	17.8	23.0	8/11	26.1	12.8	19.6
6/12	28.3	14.4	22.5	8/12	28.9	15.6	22.2
6/13	30.0	14.4	23.4	8/13	27.8	11.1	21.0
6/14	30.6	19.4	24.8	8/14	27.8	15.6	21.9
6/15	26.7	14.4	21.3	8/15	30.6	14.4	23.2
6/16	29.4	13.9	22.5	8/16	32.2	21.1	26.3
6/17	31.1	20.0	25.6	8/17	33.9	22.2	27.5
6/18	30.6	18.3	24.9	8/18	30.6	18.9	24.3
6/19	30.6	17.8	24.4	8/19	32.2	17.2	24.7
6/20	31.1	19.4	26.0	8/20	33.3	21.7	26.8
6/21	32.2	20.6	26.2	8/21	36.7	22.2	29.0
6/22	37.2	21.7	29.9	8/22	37.2	24.4	30.3
6/23	35.6	25.0	29.5	8/23	33.9	24.4	29.5
6/24	29.4	16.7	23.4	8/24	35.6	24.4	29.5
6/25	28.9	14.4	22.2	8/25	36.7	26.1	30.6
6/26	30.0	18.3	24.9	8/26	37.2	26.1	30.6
6/27	33.9	21.1	27.3	8/27	35.0	23.3	28.8
6/28	36.1	22.2	29.3	8/28	36.1	22.8	29.0
6/29	36.1	25.6	30.5	8/29	33.9	19.4	27.8
6/30	38.9	26.7	32.5	8/30	25.0	15.0	19.9
7/1	37.2	26.1	30.9	8/31	27.2	13.3	19.9
7/2	30.6	19.4	25.2	9/1	25.0	13.9	19.4
7/3	24.4	13.9	19.6	9/2	26.7	15.0	20.8
7/4	28.3	11.1	20.7	9/3	30.0	17.2	23.3
7/5	32.2	18.9	25.6	9/4	33.3	20.6	26.0
7/6	32.8	21.7	27.2	9/5	33.3	21.1	26.9
7/7	33.3	17.2	25.7	9/6	33.9	23.9	28.1
7/8	33.9	21.1	28.1	9/7	34.4	22.2	27.7
7/9	35.0	21.1	28.2	9/8	35.6	20.6	27.9
7/10	36.1	23.3	29.2	9/9	33.9	18.3	26.8
7/11	39.4	25.6	32.5	9/10	30.6	18.3	23.8
7/12	41.7	29.4	34.9	9/11	32.8	20.0	25.9
7/13	37.2	25.6	31.7	9/12	32.8	20.6	25.6
7/14	33.3	22.2	27.8	9/13	32.2	18.3	25.5
7/15	30.6	18.3	24.5	9/14	36.1	20.0	27.2
7/16	28.9	15.6	22.3	9/15	31.7	20.0	25.1
7/17	28.9	11.7	21.4	9/16	31.7	20.6	25.7
7/18	30.0	17.8	24.1	9/17	33.3	21.1	26.8
7/19	28.3	16.1	21.9	9/18	30.6	21.1	25.4
7/20	25.6	12.8	19.1	9/19	29.4	17.2	23.2
7/21	28.3	13.3	20.7	9/20	27.8	13.9	21.6
7/22	30.0	16.7	24.1	9/21	32.8	19.4	26.1
7/23	29.4	15.6	23.4	9/22	32.8	22.2	26.8
7/24	28.3	9.4	19.9	9/23	31.1	21.7	26.1
7/25	30.0	16.7	23.6	9/24	31.1	19.4	25.4
7/26	31.1	19.4	25.6	9/25	35.6	23.9	28.2
7/27	32.2	18.9	25.3	9/26	32.8	21.1	27.0
7/28	29.4	15.6	23.3	9/27	31.1	18.3	24.9
7/29	30.6	17.2	23.8	9/28	31.1	19.4	25.6
7/30	32.2	20.0	25.7	9/29	33.3	23.3	27.7
7/31	31.7	16.7	24.7	9/30	25.6	25.6	25.6

APPENDIX D. (continued). Air temperature (Celsius) as measured at California Department of Forestry Cohasset Fire Station (CST), Elevation 1600 Feet, Latitude 39.9000° N, Longitude 121.7000° W, for period June 1 through September 30, 1984-2003.

YEAR - 2000							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	28.9	18.9	23.6	8/1	38.9	27.8	32.5
6/2	28.9	18.9	23.9	8/2	38.3	26.7	32.5
6/3	31.1	18.9	24.6	8/3	36.1	23.3	29.8
6/4	30.0	20.0	24.4	8/4	33.9	21.1	28.1
6/5	25.0	12.2	18.8	8/5	35.6	23.9	29.8
6/6	26.7	16.1	21.5	8/6	36.1	24.4	30.0
6/7	23.3	13.3	18.9	8/7	31.7	20.0	25.6
6/8	17.8	11.1	14.1	8/8	31.7	15.6	24.3
6/9	20.6	12.2	16.0	8/9	31.7	20.6	25.2
6/10	22.2	11.1	17.1	8/10	29.4	15.0	22.8
6/11	26.1	14.4	20.5	8/11	34.4	20.0	27.1
6/12	29.4	18.9	23.5	8/12	34.4	24.4	29.1
6/13	38.9	20.0	29.8	8/13	33.9	20.0	27.6
6/14	40.0	27.2	34.2	8/14	35.0	23.9	28.6
6/15	39.4	28.9	33.5	8/15	35.0	23.9	28.8
6/16	37.2	25.0	30.8	8/16	36.7	23.3	30.0
6/17	36.1	22.8	29.3	8/17	33.9	23.3	29.0
6/18	27.2	14.4	21.7	8/18	30.0	18.9	24.1
6/19	33.3	15.0	25.7	8/19	29.4	16.7	23.0
6/20	36.1	24.4	30.1	8/20	30.0	15.0	22.9
6/21	35.6	25.6	30.2	8/21	31.1	20.0	25.3
6/22	33.9	22.8	28.3	8/22	32.2	21.1	26.5
6/23	32.8	17.2	25.5	8/23	30.6	21.1	25.2
6/24	33.3	20.6	26.9	8/24	32.8	18.3	25.2
6/25	33.9	22.2	27.7	8/25	34.4	21.7	28.0
6/26	36.1	24.4	30.0	8/26	33.3	20.0	27.4
6/27	36.7	23.9	30.5	8/27	33.9	21.7	27.6
6/28	36.1	23.3	30.6	8/28	35.0	20.0	27.8
6/29	35.6	22.8	29.1	8/29	26.7	16.7	21.2
6/30	30.0	18.3	24.3	8/30	22.2	15.0	18.5
7/1	27.8	13.9	21.6	8/31	23.9	13.9	18.6
7/2	27.8	14.4	20.8	9/1	15.0	12.2	13.7
7/3	24.4	11.7	18.9	9/2	20.0	11.1	14.7
7/4	27.8	15.6	21.2	9/3	21.7	13.3	16.9
7/5	24.4	12.8	18.4	9/4	21.7	10.0	15.8
7/6	25.6	12.8	19.7	9/5	24.4	12.2	18.9
7/7	26.1	13.3	19.7	9/6	31.1	17.2	24.0
7/8	28.9	13.3	21.3	9/7	31.7	20.0	25.6
7/9	30.6	17.8	24.5	9/8	30.6	21.1	25.3
7/10	31.1	20.0	25.6	9/9	30.0	17.2	23.4
7/11	32.8	20.6	26.4	9/10	31.1	18.9	24.8
7/12	33.3	19.4	26.9	9/11	33.3	20.0	26.2
7/13	30.6	14.4	23.6	9/12	33.9	22.2	27.8
7/14	32.2	18.9	25.9	9/13	34.4	25.6	29.5
7/15	32.8	18.9	26.4	9/14	27.2	20.0	24.0
7/16	28.3	17.2	23.1	9/15	27.8	15.0	21.9
7/17	27.2	11.7	20.1	9/16	30.0	15.0	23.3
7/18	31.7	15.0	24.3	9/17	35.0	22.2	29.4
7/19	33.9	20.0	27.6	9/18	38.3	28.9	33.0
7/20	35.6	22.2	28.8	9/19	39.4	28.3	33.6
7/21	33.9	22.2	27.5	9/20	36.7	26.1	30.9
7/22	33.3	16.7	25.1	9/21	25.0	13.9	20.3
7/23	34.4	20.6	28.0	9/22	20.0	14.4	16.0
7/24	35.6	23.9	29.5	9/23	26.1	13.9	19.2
7/25	35.0	24.4	29.3	9/24	27.2	15.6	21.0
7/26	31.7	20.0	25.5	9/25	30.6	18.9	24.3
7/27	32.8	14.4	24.5	9/26	31.1	18.9	24.9
7/28	34.4	21.1	28.2	9/27	30.0	20.6	24.4
7/29	36.1	25.0	30.1	9/28	25.6	12.8	18.6
7/30	37.2	26.1	31.1	9/29	33.9	17.2	26.7
7/31	40.6	26.7	32.9	9/30	25.0	25.0	25.0

YEAR - 2001							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	30.0	18.9	25.7	8/1	32.8	21.1	26.9
6/2	25.0	13.9	19.5	8/2	33.3	20.6	26.9
6/3	24.4	10.6	19.1	8/3	31.7	20.6	26.0
6/4	27.2	14.4	21.4	8/4	29.4	17.8	23.6
6/5	24.4	16.7	20.1	8/5	31.7	19.4	25.5
6/6	30.6	17.2	24.0	8/6	36.1	21.7	29.0
6/7	33.3	22.2	27.3	8/7	40.0	25.0	32.0
6/8	31.7	20.0	26.1	8/8	40.0	28.3	33.7
6/9	29.4	17.2	23.2	8/9	36.7	25.0	30.6
6/10	28.3	13.9	22.3	8/10	33.9	19.4	26.8
6/11	26.7	16.1	21.9	8/11	35.6	22.2	28.0
6/12	27.2	15.0	21.6	8/12	33.3	21.1	27.1
6/13	29.4	16.1	22.9	8/13	32.8	16.7	24.7
6/14	32.2	21.1	26.8	8/14	33.9	20.0	26.8
6/15	32.8	21.1	27.5	8/15	35.6	21.7	28.4
6/16	35.0	22.8	28.9	8/16	36.1	22.8	29.3
6/17	35.0	23.3	28.5	8/17	36.1	25.0	30.9
6/18	35.0	21.7	28.2	8/18	34.4	23.9	28.6
6/19	35.6	23.9	29.7	8/19	35.0	22.2	28.2
6/20	38.9	26.1	31.9	8/20	29.4	16.7	23.1
6/21	37.2	27.2	31.5	8/21	28.9	13.3	21.1
6/22	36.7	26.7	31.1	8/22	27.8	13.9	21.6
6/23	31.7	18.9	25.8	8/23	28.3	13.3	21.9
6/24	26.7	17.2	21.9	8/24	32.2	18.3	25.3
6/25	21.7	15.0	17.9	8/25	33.9	19.4	27.4
6/26	22.2	14.4	18.0	8/26	36.7	24.4	30.1
6/27	17.2	12.2	14.8	8/27	40.6	25.0	32.8
6/28	27.2	14.4	21.1	8/28	39.4	26.1	32.2
6/29	32.2	18.3	25.3	8/29	36.1	23.3	28.9
6/30	34.4	22.8	28.3	8/30	30.0	17.2	23.7
7/1	35.6	21.7	29.3	8/31	31.7	17.8	24.0
7/2	39.4	26.7	33.0	9/1	32.8	19.4	26.2
7/3	40.6	30.0	34.0	9/2	33.9	22.2	27.8
7/4	37.8	29.4	33.1	9/3	34.4	21.7	28.4
7/5	37.2	26.1	31.4	9/4	34.4	22.8	28.2
7/6	33.3	21.1	27.4	9/5	30.6	18.3	24.7
7/7	32.2	20.6	26.5	9/6	33.3	18.3	25.7
7/8	35.6	22.8	29.2	9/7	35.6	21.7	27.2
7/9	35.0	21.7	28.3	9/8	35.6	21.1	28.1
7/10	32.2	18.3	25.9	9/9	29.4	nr	23.3
7/11	30.6	15.6	23.5	9/10	28.9	15.0	21.5
7/12	30.6	13.9	22.9	9/11	27.8	16.7	20.6
7/13	33.3	18.9	26.5	9/12	28.9	16.7	22.1
7/14	31.7	20.0	25.5	9/13	29.4	15.0	22.5
7/15	31.1	17.2	23.8	9/14	33.3	21.1	26.6
7/16	25.0	13.9	19.2	9/15	32.2	20.6	26.4
7/17	28.3	14.4	21.4	9/16	31.1	18.9	24.6
7/18	31.1	18.3	24.9	9/17	33.3	18.9	25.1
7/19	29.4	17.8	23.9	9/18	32.2	18.9	25.0
7/20	27.2	12.2	21.2	9/19	33.3	20.6	25.9
7/21	28.3	13.3	21.2	9/20	32.2	21.1	26.0
7/22	32.8	18.3	25.4	9/21	33.9	22.2	26.8
7/23	37.8	21.7	29.2	9/22	31.1	21.1	25.8
7/24	37.8	23.3	29.7	9/23	29.4	20.0	25.0
7/25	35.6	21.1	28.2	9/24	29.4	15.6	21.3
7/26	35.6	19.4	27.4	9/25	23.3	14.4	17.9
7/27	35.0	22.2	28.4	9/26	27.8	15.6	21.5
7/28	34.4	23.3	28.4	9/27	26.1	17.2	20.8
7/29	32.2	21.1	26.6	9/28	26.7	11.7	19.1
7/30	27.2	16.1	21.8	9/29	32.2	19.4	26.2
7/31	31.7	16.7	24.6	9/30	21.7	21.7	21.7

APPENDIX D. (continued). Air temperature (Celsius) as measured at California Department of Forestry Cohasset Fire Station (CST), Elevation 1600 Feet, Latitude 39.9000° N, Longitude 121.7000° W, for period June 1 through September 30, 1984-2003.

YEAR - 2002							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	26.7	15.0	21.3	8/1	33.3	18.9	27.3
6/2	27.2	11.1	19.8	8/2	32.8	18.9	26.9
6/3	32.2	16.1	24.7	8/3	29.4	17.2	24.0
6/4	34.4	20.6	28.2	8/4	23.9	12.2	18.5
6/5	37.2	23.9	30.5	8/5	28.3	16.1	22.1
6/6	33.9	21.7	28.0	8/6	28.3	13.9	21.6
6/7	32.8	20.0	25.8	8/7	33.3	19.4	25.9
6/8	22.8	12.2	18.3	8/8	37.2	22.8	30.0
6/9	26.1	11.1	19.3	8/9	40.0	25.6	32.3
6/10	31.1	16.1	23.4	8/10	37.8	27.2	32.0
6/11	32.8	20.0	26.8	8/11	38.3	26.1	32.0
6/12	32.2	20.6	26.8	8/12	39.4	27.2	32.1
6/13	31.7	20.6	24.9	8/13	38.9	27.2	32.5
6/14	29.4	12.8	22.0	8/14	37.8	22.8	30.6
6/15	31.7	17.8	24.6	8/15	36.7	23.9	30.0
6/16	30.6	16.1	24.2	8/16	36.1	22.8	29.0
6/17	30.0	15.0	24.6	8/17	33.9	23.9	27.9
6/18	31.1	18.3	24.8	8/18	35.0	19.4	27.2
6/19	33.3	21.1	27.3	8/19	28.3	17.2	22.8
6/20	31.7	20.6	26.3	8/20	29.4	15.0	22.1
6/21	26.7	13.3	20.2	8/21	30.6	18.3	24.2
6/22	28.9	12.2	21.4	8/22	29.4	16.1	22.8
6/23	30.6	17.8	24.1	8/23	28.9	13.9	21.6
6/24	32.8	17.8	26.2	8/24	30.6	16.1	23.3
6/25	33.9	22.8	28.5	8/25	31.1	17.8	24.8
6/26	33.9	21.1	27.7	8/26	34.4	22.2	28.5
6/27	33.3	17.8	25.9	8/27	36.1	24.4	30.6
6/28	31.1	18.3	25.2	8/28	36.7	26.1	31.3
6/29	32.8	18.9	26.6	8/29	32.2	18.9	25.3
6/30	36.1	21.1	29.1	8/30	32.8	17.8	25.7
7/1	37.2	25.0	30.9	8/31	35.0	23.9	28.7
7/2	35.0	23.9	29.2	9/1	38.3	25.0	30.8
7/3	31.7	17.2	25.4	9/2	37.2	27.2	31.6
7/4	32.2	18.9	25.7	9/3	33.9	24.4	28.4
7/5	33.3	18.9	26.6	9/4	30.0	20.0	25.3
7/6	34.4	19.4	27.8	9/5	25.0	13.3	19.4
7/7	31.1	18.9	25.1	9/6	23.3	11.7	18.2
7/8	36.1	18.9	28.2	9/7	25.6	11.7	18.6
7/9	38.9	25.6	32.2	9/8	29.4	15.0	22.4
7/10	42.2	29.4	35.5	9/9	34.4	20.0	26.7
7/11	38.3	27.8	33.7	9/10	33.9	22.2	27.5
7/12	37.8	26.1	31.3	9/11	35.6	23.9	29.1
7/13	38.9	26.1	32.3	9/12	34.4	22.8	28.4
7/14	35.6	21.1	28.9	9/13	34.4	23.3	28.0
7/15	33.9	19.4	26.8	9/14	33.3	20.0	27.2
7/16	32.2	19.4	25.6	9/15	27.8	18.3	23.6
7/17	33.3	20.0	26.3	9/16	28.3	13.3	20.5
7/18	33.9	20.0	26.6	9/17	27.8	18.3	22.8
7/19	35.0	22.2	28.7	9/18	35.0	19.4	26.9
7/20	36.1	24.4	30.1	9/19	35.6	23.3	29.3
7/21	32.2	21.7	27.2	9/20	35.0	23.9	28.8
7/22	31.7	17.2	24.7	9/21	35.6	25.0	29.4
7/23	31.7	17.8	25.8	9/22	37.2	24.4	29.7
7/24	32.8	19.4	26.0	9/23	36.1	24.4	29.7
7/25	33.3	20.0	26.8	9/24	35.6	24.4	28.9
7/26	37.2	21.1	28.8	9/25	35.6	25.0	29.3
7/27	36.7	24.4	29.9	9/26	33.3	20.6	27.4
7/28	35.6	20.6	27.7	9/27	22.8	12.2	17.0
7/29	33.3	17.2	25.7	9/28	23.3	11.7	17.1
7/30	33.3	21.7	27.2	9/29	22.8	15.0	18.4
7/31	34.4	19.4	27.1	9/30	16.7	16.7	16.7

YEAR - 2003 (DRAFT)							
DAY	MAX	MIN	MEAN	DAY	MAX	MIN	MEAN
6/1	34.4	19.4	27.3	8/1	32.2	20.0	26.6
6/2	35.6	21.1	28.9	8/2	26.1	19.4	21.9
6/3	36.7	24.4	30.1	8/3	32.2	19.4	25.3
6/4	37.2	18.3	27.2	8/4	31.1	18.3	24.7
6/5	33.9	19.4	26.0	8/5	26.7	13.3	20.9
6/6	30.0	16.1	23.4	8/6	27.2	15.6	21.7
6/7	30.0	16.7	22.9	8/7	28.3	13.3	21.4
6/8	31.1	17.8	24.1	8/8	30.6	14.4	23.1
6/9	29.4	16.7	23.3	8/9	31.7	20.0	25.4
6/10	25.0	13.3	18.8	8/10	32.2	18.3	25.5
6/11	26.1	12.2	19.4	8/11	31.7	16.7	24.8
6/12	25.0	10.6	17.8	8/12	33.3	18.3	25.9
6/13	26.7	12.8	19.6	8/13	40.0	11.1	28.5
6/14	29.4	12.8	22.2	8/14	38.9	15.6	28.8
6/15	34.4	18.9	26.3	8/15	36.7	14.4	28.2
6/16	37.8	21.1	28.8	8/16	36.7	15.6	27.0
6/17	34.4	21.7	28.5	8/17	36.1	9.4	25.4
6/18	28.3	17.8	23.2	8/18	35.0	14.4	24.6
6/19	27.8	13.3	21.1	8/19	36.7	14.4	24.4
6/20	27.2	13.3	20.7	8/20	38.3	12.2	23.5
6/21	26.7	11.1	19.6	8/21	36.7	13.3	25.5
6/22	28.3	16.7	21.9	8/22	37.2	13.9	26.0
6/23	28.9	13.9	20.8	8/23	37.2	13.3	25.5
6/24	30.6	15.0	23.7	8/24	36.7	16.1	26.0
6/25	35.0	22.2	28.8	8/25	36.7	22.8	29.9
6/26	38.9	24.4	31.0	8/26	35.0	24.4	28.8
6/27	39.4	26.1	32.1	8/27	34.4	20.0	26.7
6/28	37.2	24.4	30.8	8/28	32.2	18.3	25.5
6/29	32.8	22.2	27.5	8/29	35.0	16.1	26.5
6/30	31.7	19.4	25.2	8/30	34.4	19.4	27.0
7/1	30.6	13.9	23.5	8/31	38.9	21.7	29.9
7/2	31.7	19.4	25.0	9/1	37.8	25.6	31.3
7/3	32.2	19.4	25.5	9/2	38.3	24.4	31.6
7/4	35.6	20.0	28.1	9/3	38.3	23.9	30.8
7/5	35.6	22.2	28.9	9/4	36.1	23.3	28.7
7/6	32.8	17.8	26.0	9/5	33.3	18.9	26.0
7/7	30.0	16.1	23.9	9/6	29.4	16.7	22.1
7/8	33.3	14.4	25.0	9/7	24.4	15.6	19.6
7/9	36.7	21.1	28.7	9/8	28.3	13.3	20.0
7/10	37.8	24.4	30.1	9/9	23.9	14.4	18.4
7/11	36.7	21.7	29.2	9/10	30.6	14.4	23.3
7/12	35.0	23.9	29.1	9/11	36.1	20.0	28.2
7/13	35.0	18.3	26.4	9/12	36.7	22.2	29.2
7/14	37.2	23.3	29.5	9/13	35.6	22.2	28.3
7/15	35.6	24.4	29.8	9/14	35.0	24.4	28.9
7/16	36.7	21.7	29.1	9/15	30.6	20.0	24.8
7/17	38.9	25.0	32.3	9/16	27.2	13.3	20.4
7/18	40.0	28.3	33.3	9/17	31.1	12.2	21.0
7/19	38.3	27.2	32.4	9/18	32.8	17.8	25.2
7/20	38.3	26.1	31.8	9/19	33.9	20.0	26.6
7/21	40.0	26.1	32.6	9/20	37.8	23.3	31.1
7/22	40.0	27.2	33.4	9/21	37.8	24.4	30.3
7/23	38.9	25.6	31.5	9/22	39.4	25.6	31.5
7/24	36.7	24.4	29.3	9/23	37.2	25.6	30.0
7/25	36.1	20.6	28.9	9/24	36.1	16.7	27.2
7/26	37.2	20.6	29.4	9/25	33.3	14.4	22.2
7/27	42.2	26.1	34.0	9/26	31.1	15.6	23.1
7/28	41.1	27.8	33.5	9/27	32.8	19.4	25.0
7/29	43.3	28.3	35.0	9/28	32.2	18.3	24.5
7/30	37.2	23.9	29.7	9/29	27.2	11.7	19.5
7/31	33.3	20.0	26.9	9/30	18.9	18.9	18.9

## **APPENDIX E**

**TABLES 1-6  
BUTTE CREEK WATER TEMPERATURES  
MAY 1-DECEMBER 31, 2001-2003**

APPENDIX E, Table 1. Butte Creek water temperatures (Celsius) at Quartz Bowl Pool for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
05/01/01	nr	nr	nr	05/01/02	9.0	7.6	8.3	05/01/03	nr	nr	nr
05/02/01	nr	nr	nr	05/02/02	11.0	8.2	9.5	05/02/03	nr	nr	nr
05/03/01	nr	nr	nr	05/03/02	12.1	9.9	11.0	05/03/03	nr	nr	nr
05/04/01	nr	nr	nr	05/04/02	12.6	10.3	11.5	05/04/03	nr	nr	nr
05/05/01	nr	nr	nr	05/05/02	12.9	10.9	11.9	05/05/03	nr	nr	nr
05/06/01	nr	nr	nr	05/06/02	12.9	10.7	11.8	05/06/03	nr	nr	nr
05/07/01	nr	nr	nr	05/07/02	12.7	10.9	11.8	05/07/03	nr	nr	nr
05/08/01	nr	nr	nr	05/08/02	12.1	9.8	11.0	05/08/03	nr	nr	nr
05/09/01	nr	nr	nr	05/09/02	12.3	9.8	11.0	05/09/03	nr	nr	nr
05/10/01	nr	nr	nr	05/10/02	11.8	10.3	11.0	05/10/03	nr	nr	nr
05/11/01	nr	nr	nr	05/11/02	12.0	9.3	10.6	05/11/03	nr	nr	nr
05/12/01	nr	nr	nr	05/12/02	12.7	10.3	11.5	05/12/03	nr	nr	nr
05/13/01	nr	nr	nr	05/13/02	14.0	11.5	12.6	05/13/03	nr	nr	nr
05/14/01	nr	nr	nr	05/14/02	13.5	11.3	12.4	05/14/03	nr	nr	nr
05/15/01	nr	nr	nr	05/15/02	13.8	11.5	12.7	05/15/03	nr	nr	nr
05/16/01	nr	nr	nr	05/16/02	15.9	11.6	13.4	05/16/03	nr	nr	nr
05/17/01	nr	nr	nr	05/17/02	14.3	12.9	13.5	05/17/03	nr	nr	nr
05/18/01	nr	nr	nr	05/18/02	13.7	12.7	13.2	05/18/03	nr	nr	nr
05/19/01	nr	nr	nr	05/19/02	12.9	10.6	11.8	05/19/03	nr	nr	nr
05/20/01	nr	nr	nr	05/20/02	10.4	8.6	9.2	05/20/03	nr	nr	nr
05/21/01	nr	nr	nr	05/21/02	8.7	7.9	8.3	05/21/03	nr	nr	nr
05/22/01	nr	nr	nr	05/22/02	9.6	7.9	8.8	05/22/03	nr	nr	nr
05/23/01	nr	nr	nr	05/23/02	10.7	8.7	9.7	05/23/03	nr	nr	nr
05/24/01	nr	nr	nr	05/24/02	12.1	10.4	11.3	05/24/03	nr	nr	nr
05/25/01	nr	nr	nr	05/25/02	13.2	11.6	12.4	05/25/03	nr	nr	nr
05/26/01	nr	nr	nr	05/26/02	14.0	12.4	13.1	05/26/03	nr	nr	nr
05/27/01	nr	nr	nr	05/27/02	14.0	13.0	13.4	05/27/03	nr	nr	nr
05/28/01	nr	nr	nr	05/28/02	14.1	12.6	13.4	05/28/03	nr	nr	nr
05/29/01	nr	nr	nr	05/29/02	15.4	13.7	14.5	05/29/03	nr	nr	nr
05/30/01	nr	nr	nr	05/30/02	17.1	15.2	16.0	05/30/03	nr	nr	nr
05/31/01	nr	nr	nr	05/31/02	17.6	16.0	16.8	05/31/03	nr	nr	nr
06/01/01	nr	nr	nr	06/01/02	17.0	16.0	16.6	06/01/03	nr	nr	nr
06/01/01	nr	nr	nr	06/02/02	16.2	14.7	15.6	06/02/03	nr	nr	nr
06/03/01	nr	nr	nr	06/03/02	15.7	14.4	15.1	06/03/03	nr	nr	nr
06/04/01	nr	nr	nr	06/04/02	15.9	14.1	15.0	06/04/03	nr	nr	nr
06/05/01	nr	nr	nr	06/05/02	17.0	15.2	16.2	06/05/03	nr	nr	nr
06/06/01	nr	nr	nr	06/06/02	18.2	15.9	16.9	06/06/03	nr	nr	nr
06/07/01	nr	nr	nr	06/07/02	17.9	15.5	16.5	06/07/03	nr	nr	nr
06/08/01	nr	nr	nr	06/08/02	17.0	14.9	15.7	06/08/03	nr	nr	nr
06/09/01	nr	nr	nr	06/09/02	15.4	13.2	14.2	06/09/03	nr	nr	nr
06/10/01	nr	nr	nr	06/10/02	15.5	13.0	14.0	06/10/03	nr	nr	nr
06/11/01	nr	nr	nr	06/11/02	16.5	13.7	14.8	06/11/03	nr	nr	nr
06/12/01	nr	nr	nr	06/12/02	17.1	14.4	15.5	06/12/03	nr	nr	nr
06/13/01	nr	nr	nr	06/13/02	17.6	14.7	15.9	06/13/03	nr	nr	nr
06/14/01	nr	nr	nr	06/14/02	17.8	15.4	16.4	06/14/03	nr	nr	nr
06/15/01	nr	nr	nr	06/15/02	17.8	15.2	16.4	06/15/03	nr	nr	nr
06/16/01	nr	nr	nr	06/16/02	17.6	15.2	16.2	06/16/03	nr	nr	nr
06/17/01	nr	nr	nr	06/17/02	17.6	15.1	16.1	06/17/03	nr	nr	nr
06/18/01	Thermograph installed			06/18/02	18.4	15.9	16.8	06/18/03	nr	nr	nr
06/19/01	19.4	16.8	18.0	06/19/02	18.4	15.9	16.9	06/19/03	nr	nr	nr
06/20/01	19.4	16.5	17.6	06/20/02	18.7	16.0	17.1	06/20/03	nr	nr	nr
06/21/01	20.0	17.1	18.3	06/21/02	18.6	16.2	17.2	06/21/03	nr	nr	nr
06/22/01	20.5	17.7	18.8	06/22/02	18.7	16.2	17.3	06/22/03	nr	nr	nr
06/23/01	19.5	17.4	18.3	06/23/02	19.2	16.7	17.6	06/23/03	nr	nr	nr
06/24/01	17.7	16.3	17.0	06/24/02	19.2	16.5	17.7	06/24/03	Thermograph installed		
06/25/01	16.3	15.2	15.7	06/25/02	19.7	16.7	17.9	06/25/03	15.4	14.9	15.2
06/26/01	15.2	14.4	14.8	06/26/02	18.1	17.4	17.8	06/26/03	16.5	14.1	15.2
06/27/01	14.6	14.0	14.3	06/27/02	19.7	17.1	18.3	06/27/03	17.3	15.1	16.2
06/28/01	16.5	13.3	14.5	06/28/02	20.2	17.6	18.6	06/28/03	17.8	15.9	17.0
06/29/01	17.7	14.7	15.9	06/29/02	20.5	17.9	19.0	06/29/03	17.6	15.9	16.9
06/30/01	18.2	15.5	16.7	06/30/02	20.7	18.1	19.1	06/30/03	17.0	15.2	16.2

APPENDIX E, Table 1 (continued). Butte Creek water temperatures (Celsius) at Quartz Bowl Pool for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
07/01/01	19.2	16.5	17.5	07/01/02	20.3	17.6	18.8	07/01/03	16.3	14.6	15.6
07/02/01	19.5	16.8	17.9	07/02/02	20.5	17.9	19.0	07/02/03	15.9	14.3	15.3
07/03/01	19.7	17.4	18.3	07/03/02	20.2	17.6	18.7	07/03/03	15.9	14.0	15.1
07/04/01	20.0	17.9	18.7	07/04/02	20.0	17.4	18.6	07/04/03	16.3	14.3	15.5
07/05/01	20.7	18.2	19.1	07/05/02	20.2	17.6	18.6	07/05/03	17.0	15.1	16.1
07/06/01	20.3	18.1	19.0	07/06/02	20.5	17.8	18.9	07/06/03	17.5	15.5	16.6
07/07/01	19.5	17.6	18.5	07/07/02	20.5	18.1	19.1	07/07/03	17.5	15.9	16.9
07/08/01	20.0	17.1	18.3	07/08/02	20.3	17.8	18.8	07/08/03	17.3	15.4	16.6
07/09/01	20.3	17.7	18.7	07/09/02	20.7	17.8	19.0	07/09/03	17.5	15.4	16.6
07/10/01	20.7	18.2	19.2	07/10/02	21.3	18.2	19.6	07/10/03	18.1	15.9	17.0
07/11/01	20.5	18.4	19.3	07/11/02	21.7	18.9	20.1	07/11/03	18.1	16.3	17.3
07/12/01	20.0	17.7	18.8	07/12/02	22.2	20.0	20.8	07/12/03	18.4	16.5	17.5
07/13/01	19.8	17.4	18.4	07/13/02	22.0	19.5	20.6	07/13/03	18.4	16.8	17.6
07/14/01	19.5	17.1	18.0	07/14/02	22.3	19.7	20.7	07/14/03	18.1	16.3	17.3
07/15/01	19.0	16.6	17.6	07/15/02	21.5	19.4	20.1	07/15/03	18.9	16.5	17.5
07/16/01	18.4	16.3	17.2	07/16/02	20.7	18.1	19.1	07/16/03	19.1	16.7	17.6
07/17/01	18.2	15.8	16.8	07/17/02	20.2	17.6	18.7	07/17/03	18.9	16.3	17.5
07/18/01	18.2	15.7	16.7	07/18/02	20.0	17.9	18.8	07/18/03	19.2	16.7	17.7
07/19/01	18.4	16.0	16.9	07/19/02	20.7	17.9	19.1	07/19/03	20.0	17.1	18.3
07/20/01	18.2	15.8	16.8	07/20/02	21.0	18.4	19.5	07/20/03	20.4	17.9	18.8
07/21/01	17.9	15.5	16.5	07/21/02	21.0	19.1	19.9	07/21/03	21.4	18.9	19.8
07/22/01	18.1	15.4	16.4	07/22/02	21.3	19.1	20.0	07/22/03	21.9	19.4	20.4
07/23/01	18.7	15.8	17.0	07/23/02	20.7	18.2	19.3	07/23/03	22.2	20.0	20.9
07/24/01	19.7	16.6	17.9	07/24/02	20.3	17.8	18.8	07/24/03	21.9	20.0	20.6
07/25/01	20.3	17.6	18.6	07/25/02	19.9	17.3	18.4	07/25/03	21.4	19.4	20.2
07/26/01	20.7	18.2	19.1	07/26/02	19.9	17.3	18.3	07/26/03	21.0	18.7	19.7
07/27/01	20.3	17.9	18.8	07/27/02	20.3	17.8	18.8	07/27/03	20.9	18.3	19.4
07/28/01	19.5	17.1	18.0	07/28/02	21.0	18.2	19.4	07/28/03	21.2	18.4	19.5
07/29/01	19.4	16.8	17.8	07/29/02	21.0	18.6	19.6	07/29/03	21.7	19.1	20.1
07/30/01	19.2	16.9	17.7	07/30/02	21.2	19.2	20.0	07/30/03	21.7	19.7	20.5
07/31/01	19.4	16.9	17.8	07/31/02	21.0	19.2	20.0	07/31/03	20.9	19.4	20.1
08/01/01	19.4	16.8	17.8	08/01/02	21.0	18.9	19.7	08/01/03	20.0	18.7	19.5
08/02/01	19.4	16.9	17.8	08/02/02	20.8	18.4	19.4	08/02/03	19.4	18.3	18.8
08/03/01	19.0	16.6	17.5	08/03/02	20.5	18.4	19.2	08/03/03	19.6	17.1	18.1
08/04/01	18.9	16.6	17.4	08/04/02	19.4	17.8	18.4	08/04/03	19.6	17.1	18.1
08/05/01	19.2	16.6	17.6	08/05/02	18.4	16.3	17.1	08/05/03	19.2	17.1	17.9
08/06/01	19.5	16.8	17.8	08/06/02	17.8	15.5	16.4	08/06/03	18.6	16.5	17.3
08/07/01	19.8	17.3	18.2	08/07/02	17.4	15.1	16.0	08/07/03	18.1	15.7	16.7
08/08/01	20.5	17.9	18.8	08/08/02	17.8	15.1	16.2	08/08/03	17.8	15.4	16.3
08/09/01	21.0	18.7	19.4	08/09/02	18.4	15.7	16.8	08/09/03	17.8	15.2	16.2
08/10/01	20.7	18.6	19.3	08/10/02	19.2	16.5	17.6	08/10/03	17.9	15.4	16.4
08/11/01	20.0	17.7	18.7	08/11/02	19.7	17.0	18.1	08/11/03	17.8	15.2	16.3
08/12/01	19.5	17.4	18.3	08/12/02	20.0	17.4	18.6	08/12/03	17.3	14.8	15.8
08/13/01	19.4	17.3	18.0	08/13/02	20.7	18.2	19.2	08/13/03	17.1	14.4	15.6
08/14/01	19.4	16.9	17.8	08/14/02	21.0	18.7	19.6	08/14/03	17.3	14.8	15.8
08/15/01	19.0	16.5	17.4	08/15/02	21.2	18.9	19.8	08/15/03	17.5	14.9	16.0
08/16/01	18.7	16.2	17.1	08/16/02	21.2	19.1	19.9	08/16/03	17.1	14.4	15.6
08/17/01	18.1	16.0	16.9	08/17/02	20.5	18.7	19.5	08/17/03	17.3	14.6	15.8
08/18/01	18.6	16.2	17.0	08/18/02	20.2	18.2	19.0	08/18/03	17.9	15.2	16.4
08/19/01	18.6	16.2	17.0	08/19/02	19.5	17.8	18.4	08/19/03	18.4	15.9	16.8
08/20/01	18.4	16.2	17.0	08/20/02	18.9	17.0	17.7	08/20/03	18.4	15.9	16.9
08/21/01	17.9	15.8	16.6	08/21/02	17.9	16.3	17.0	08/21/03	17.5	16.5	16.9
08/22/01	17.7	15.7	16.4	08/22/02	17.9	15.7	16.6	08/22/03	17.0	16.0	16.6
08/23/01	17.7	15.8	16.5	08/23/02	17.6	15.4	16.2	08/23/03	17.6	15.1	16.2
08/24/01	18.2	15.8	16.7	08/24/02	17.4	15.1	16.0	08/24/03	17.9	15.4	16.4
08/25/01	18.4	16.0	16.8	08/25/02	17.6	15.2	16.1	08/25/03	17.9	15.4	16.4
08/26/01	18.7	16.2	17.1	08/26/02	17.9	15.7	16.6	08/26/03	18.1	15.9	16.7
08/27/01	19.0	16.6	17.4	08/27/02	18.2	16.0	16.8	08/27/03	18.4	16.2	17.0
08/28/01	19.2	16.9	17.7	08/28/02	18.9	16.5	17.4	08/28/03	17.8	15.5	16.5
08/29/01	19.4	17.3	17.9	08/29/02	19.1	17.0	17.7	08/29/03	17.3	14.9	15.9
08/30/01	19.2	17.3	17.9	08/30/02	18.9	16.8	17.6	08/30/03	17.6	15.1	16.1
08/31/01	18.9	17.1	17.7	08/31/02	18.7	16.5	17.4	08/31/03	17.8	15.7	16.6

APPENDIX E, Table 1 (continued). Butte Creek water temperatures (Celsius) at Quartz Bowl Pool for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
09/01/01	19.0	16.9	17.6	09/01/02	18.7	16.5	17.4	09/01/03	18.4	16.0	17.0
09/02/01	18.7	16.6	17.3	09/02/02	19.1	16.8	17.7	09/02/03	18.7	16.5	17.3
09/03/01	18.6	16.5	17.2	09/03/02	18.6	16.7	17.4	09/03/03	17.8	16.8	17.3
09/04/01	18.4	16.5	17.0	09/04/02	18.1	16.2	16.9	09/04/03	18.7	16.7	17.5
09/05/01	17.9	15.8	16.6	09/05/02	17.1	15.2	16.0	09/05/03	19.2	17.1	17.9
09/06/01	17.4	15.2	16.0	09/06/02	16.2	14.3	15.0	09/06/03	18.4	16.7	17.3
09/07/01	16.8	14.7	15.5	09/07/02	15.2	13.4	14.1	09/07/03	16.7	15.5	16.0
09/08/01	17.1	14.7	15.6	09/08/02	14.9	12.7	13.6	09/08/03	16.0	14.8	15.4
09/09/01	16.9	15.0	15.7	09/09/02	15.2	12.9	13.8	09/09/03	14.9	14.6	14.7
09/10/01	16.8	15.0	15.7	09/10/02	15.9	13.4	14.3	09/10/03	15.4	13.4	14.2
09/11/01	15.5	14.7	15.2	09/11/02	16.3	14.0	14.8	09/11/03	16.0	13.5	14.5
09/12/01	16.2	14.3	15.0	09/12/02	16.5	14.3	15.2	09/12/03	16.8	14.4	15.3
09/13/01	16.8	14.7	15.5	09/13/02	16.8	14.6	15.4	09/13/03	16.8	14.8	15.5
09/14/01	17.3	15.2	15.9	09/14/02	16.5	14.6	15.4	09/14/03	16.5	14.6	15.4
09/15/01	17.3	15.5	16.1	09/15/02	16.0	14.7	15.2	09/15/03	16.5	14.6	15.3
09/16/01	17.3	15.5	16.1	09/16/02	16.2	14.1	14.9	09/16/03	15.5	14.3	14.8
09/17/01	17.4	15.4	16.1	09/17/02	15.9	14.1	14.8	09/17/03	15.2	13.4	14.1
09/18/01	17.4	15.4	16.1	09/18/02	16.2	14.1	14.8	09/18/03	14.6	12.6	13.4
09/19/01	17.4	15.5	16.2	09/19/02	16.2	14.0	14.8	09/19/03	14.8	12.7	13.5
09/20/01	17.3	15.5	16.1	09/20/02	16.7	14.3	15.2	09/20/03	15.2	13.0	13.9
09/21/01	16.8	14.7	15.5	09/21/02	16.8	14.6	15.5	09/21/03	15.7	13.5	14.4
09/22/01	16.3	14.4	15.2	09/22/02	17.0	14.7	15.6	09/22/03	16.0	13.8	14.7
09/23/01	15.7	14.3	14.8	09/23/02	16.8	14.6	15.5	09/23/03	16.0	14.1	14.9
09/24/01	15.4	14.0	14.5	09/24/02	16.7	14.6	15.3	09/24/03	16.3	14.3	15.1
09/25/01	15.5	14.4	14.7	09/25/02	16.3	14.3	15.1	09/25/03	16.5	14.4	15.3
09/26/01	15.2	13.5	14.1	09/26/02	16.0	14.0	14.8	09/26/03	16.3	14.3	15.2
09/27/01	15.0	13.5	14.0	09/27/02	15.7	14.1	14.7	09/27/03	16.3	14.6	15.3
09/28/01	14.7	13.2	13.7	09/28/02	15.2	13.5	14.3	09/28/03	16.0	14.1	15.0
09/29/01	14.9	12.9	13.6	09/29/02	14.7	13.8	14.1	09/29/03	15.7	14.1	14.7
09/30/01	15.2	13.2	13.8	09/30/02	14.7	12.9	13.6	09/30/03	14.9	13.2	14.0
10/01/01	15.7	13.6	14.3	10/01/02	13.4	11.6	12.4	10/01/03	15.1	13.4	14.0
10/02/01	16.0	14.3	14.8	10/02/02	12.3	10.7	11.3	10/02/03	15.1	13.4	14.1
10/03/01	16.2	14.3	14.9	10/03/02	11.6	10.1	10.9	10/03/03	14.1	13.4	13.7
10/04/01	15.8	14.1	14.7	10/04/02	12.6	10.7	11.4	10/04/03	nr	nr	nr
10/05/01	14.9	13.6	14.2	10/05/02	13.2	11.3	12.1	10/05/03	nr	nr	nr
10/06/01	14.3	12.7	13.4	10/06/02	14.1	12.3	13.0	10/06/03	nr	nr	nr
10/07/01	14.0	12.6	13.0	10/07/02	14.6	12.7	13.4	10/07/03	nr	nr	nr
10/08/01	14.1	12.7	13.1	10/08/02	14.4	12.7	13.4	10/08/03	nr	nr	nr
10/09/01	13.5	12.1	12.6	10/09/02	14.3	12.6	13.3	10/09/03	nr	nr	nr
10/10/01	12.6	11.2	11.8	10/10/02	14.0	12.9	13.2	10/10/03	nr	nr	nr
10/11/01	12.6	11.3	11.7	10/11/02	13.5	12.0	12.6	10/11/03	nr	nr	nr
10/12/01	12.7	11.0	11.7	10/12/02	12.7	11.0	11.7	10/12/03	nr	nr	nr
10/13/01	12.7	11.0	11.6	10/13/02	12.6	10.9	11.5	10/13/03	nr	nr	nr
10/14/01	12.6	11.3	11.8	10/14/02	12.4	10.9	11.4	10/14/03	nr	nr	nr
10/15/01	12.6	11.3	11.9	10/15/02	12.3	10.6	11.3	10/15/03	nr	nr	nr
10/16/01	12.9	11.5	12.0	10/16/02	12.1	10.4	11.2	10/16/03	nr	nr	nr
10/17/01	12.9	11.6	12.1	10/17/02	12.0	10.3	11.0	10/17/03	nr	nr	nr
10/18/01	12.9	11.5	12.0	10/18/02	11.8	10.6	11.0	10/18/03	nr	nr	nr
10/19/01	12.3	11.0	11.6	10/19/02	12.0	10.6	11.1	10/19/03	nr	nr	nr
10/20/01	11.8	10.7	11.2	10/20/02	12.1	10.6	11.2	10/20/03	nr	nr	nr
10/21/01	11.8	10.4	10.9	10/21/02	11.6	10.4	10.9	10/21/03	nr	nr	nr
10/22/01	11.5	10.4	10.7	10/22/02	10.6	10.3	10.4	10/22/03	nr	nr	nr
10/23/01	11.6	10.4	10.8	10/23/02	Thermograph Lost			10/23/03	nr	nr	nr
10/24/01	10.9	9.6	10.2	10/24/02	nr	nr	nr	10/24/03	nr	nr	nr
10/25/01	10.5	9.3	9.8	10/25/02	nr	nr	nr	10/25/03	nr	nr	nr
10/26/01	10.7	9.3	9.9	10/26/02	nr	nr	nr	10/26/03	nr	nr	nr
10/27/01	10.5	9.6	9.9	10/27/02	nr	nr	nr	10/27/03	nr	nr	nr
10/28/01	10.4	9.9	10.1	10/28/02	nr	nr	nr	10/28/03	nr	nr	nr
10/29/01	10.7	10.1	10.4	10/29/02	nr	nr	nr	10/29/03	nr	nr	nr
10/30/01	11.3	10.5	10.8	10/30/02	nr	nr	nr	10/30/03	nr	nr	nr
10/31/01	11.3	10.4	10.8	10/31/02	nr	nr	nr	10/31/03	nr	nr	nr

APPENDIX E, Table 1 (continued). Butte Creek water temperatures (Celsius) at Quartz Bowl Pool for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
11/01/01	10.7	9.5	10.0	11/01/02	nr	nr	nr	11/01/03	nr	nr	nr
11/02/01	10.1	9.0	9.4	11/02/02	nr	nr	nr	11/02/03	nr	nr	nr
11/03/01	9.9	8.7	9.3	11/03/02	nr	nr	nr	11/03/03	nr	nr	nr
11/04/01	10.1	9.0	9.4	11/04/02	nr	nr	nr	11/04/03	nr	nr	nr
11/05/01	10.1	8.8	9.4	11/05/02	nr	nr	nr	11/05/03	nr	nr	nr
11/06/01	9.6	8.8	9.2	11/06/02	nr	nr	nr	11/06/03	nr	nr	nr
11/07/01	15.2	7.8	9.1	11/07/02	nr	nr	nr	11/07/03	nr	nr	nr
11/08/01	8.7	7.6	8.1	11/08/02	nr	nr	nr	11/08/03	nr	nr	nr
11/09/01	8.7	7.8	8.2	11/09/02	nr	nr	nr	11/09/03	nr	nr	nr
11/10/01	9.0	8.1	8.5	11/10/02	nr	nr	nr	11/10/03	nr	nr	nr
11/11/01	10.3	8.9	9.4	11/11/02	nr	nr	nr	11/11/03	nr	nr	nr
11/12/01	10.3	9.9	10.1	11/12/02	nr	nr	nr	11/12/03	nr	nr	nr
11/13/01	9.9	9.2	9.5	11/13/02	nr	nr	nr	11/13/03	nr	nr	nr
11/14/01	9.6	9.0	9.3	11/14/02	nr	nr	nr	11/14/03	nr	nr	nr
11/15/01	9.9	9.0	9.4	11/15/02	nr	nr	nr	11/15/03	nr	nr	nr
11/16/01	9.5	9.0	9.2	11/16/02	nr	nr	nr	11/16/03	nr	nr	nr
11/17/01	9.8	9.0	9.4	11/17/02	nr	nr	nr	11/17/03	nr	nr	nr
11/18/01	9.2	8.4	8.8	11/18/02	nr	nr	nr	11/18/03	nr	nr	nr
11/19/01	8.9	8.2	8.6	11/19/02	nr	nr	nr	11/19/03	nr	nr	nr
11/20/01	9.5	8.9	9.1	11/20/02	nr	nr	nr	11/20/03	nr	nr	nr
11/21/01	10.3	9.5	9.7	11/21/02	nr	nr	nr	11/21/03	nr	nr	nr
11/22/01	10.3	9.0	9.8	11/22/02	nr	nr	nr	11/22/03	nr	nr	nr
11/23/01	8.9	7.5	8.0	11/23/02	nr	nr	nr	11/23/03	nr	nr	nr
11/24/01	8.4	7.5	7.9	11/24/02	nr	nr	nr	11/24/03	nr	nr	nr
11/25/01	7.6	6.7	7.1	11/25/02	nr	nr	nr	11/25/03	nr	nr	nr
11/26/01	6.5	5.3	6.0	11/26/02	nr	nr	nr	11/26/03	nr	nr	nr
11/27/01	5.3	4.5	5.0	11/27/02	nr	nr	nr	11/27/03	nr	nr	nr
11/28/01	5.1	4.7	5.0	11/28/02	nr	nr	nr	11/28/03	nr	nr	nr
11/29/01	4.5	3.4	4.0	11/29/02	nr	nr	nr	11/29/03	nr	nr	nr
11/30/01	4.4	3.4	3.8	11/30/02	nr	nr	nr	11/30/03	nr	nr	nr
12/01/01	6.7	4.4	5.6	12/01/02	nr	nr	nr	12/01/03	nr	nr	nr
12/02/01	7.6	6.5	7.2	12/02/02	nr	nr	nr	12/02/03	nr	nr	nr
12/03/01	7.2	5.8	6.8	12/03/02	nr	nr	nr	12/03/03	nr	nr	nr
12/04/01	5.9	5.1	5.6	12/04/02	nr	nr	nr	12/04/03	nr	nr	nr
12/05/01	5.8	5.0	5.4	12/05/02	nr	nr	nr	12/05/03	nr	nr	nr
12/06/01	7.3	5.6	6.6	12/06/02	nr	nr	nr	12/06/03	nr	nr	nr
12/07/01	6.9	5.9	6.4	12/07/02	nr	nr	nr	12/07/03	nr	nr	nr
12/08/01	6.4	5.8	6.1	12/08/02	nr	nr	nr	12/08/03	nr	nr	nr
12/09/01	6.4	5.6	6.1	12/09/02	nr	nr	nr	12/09/03	nr	nr	nr
12/10/01	5.6	4.7	5.1	12/10/02	nr	nr	nr	12/10/03	nr	nr	nr
12/11/01	4.7	4.0	4.4	12/11/02	nr	nr	nr	12/11/03	nr	nr	nr
12/12/01	4.8	4.0	4.4	12/12/02	nr	nr	nr	12/12/03	nr	nr	nr
12/13/01	5.3	4.7	5.0	12/13/02	nr	nr	nr	12/13/03	nr	nr	nr
12/14/01	5.3	3.9	4.4	12/14/02	nr	nr	nr	12/14/03	nr	nr	nr
12/15/01	3.9	3.3	3.6	12/15/02	nr	nr	nr	12/15/03	nr	nr	nr
12/16/01	4.7	3.9	4.2	12/16/02	nr	nr	nr	12/16/03	nr	nr	nr
12/17/01	6.5	4.8	5.8	12/17/02	nr	nr	nr	12/17/03	nr	nr	nr
12/18/01	6.7	6.4	6.5	12/18/02	nr	nr	nr	12/18/03	nr	nr	nr
12/19/01	7.0	6.5	6.7	12/19/02	nr	nr	nr	12/19/03	nr	nr	nr
12/20/01	6.9	5.8	6.2	12/20/02	nr	nr	nr	12/20/03	nr	nr	nr
12/21/01	6.4	5.6	6.0	12/21/02	nr	nr	nr	12/21/03	nr	nr	nr
12/22/01	6.4	6.1	6.2	12/22/02	nr	nr	nr	12/22/03	nr	nr	nr
12/23/01	6.2	5.8	6.0	12/23/02	nr	nr	nr	12/23/03	nr	nr	nr
12/24/01	5.8	5.1	5.5	12/24/02	nr	nr	nr	12/24/03	nr	nr	nr
12/25/01	6.2	5.3	5.7	12/25/02	nr	nr	nr	12/25/03	nr	nr	nr
12/26/01	7.0	6.2	6.6	12/26/02	nr	nr	nr	12/26/03	nr	nr	nr
12/27/01	7.0	6.5	6.8	12/27/02	nr	nr	nr	12/27/03	nr	nr	nr
12/28/01	7.3	6.7	6.9	12/28/02	nr	nr	nr	12/28/03	nr	nr	nr
12/29/01	7.8	7.2	7.4	12/29/02	nr	nr	nr	12/29/03	nr	nr	nr
12/30/01	8.6	7.6	7.8	12/30/02	nr	nr	nr	12/30/03	nr	nr	nr
12/31/01	8.9	8.4	8.6	12/31/02	nr	nr	nr	12/31/03	nr	nr	nr

APPENDIX E, Table 2. Butte Creek water temperatures (Celsius) at Chimney Rock Pool for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
05/01/01	nr	nr	nr	05/01/02	9.7	7.8	8.7	05/01/03	nr	nr	nr
05/02/01	nr	nr	nr	05/02/02	11.8	8.4	9.8	05/02/03	nr	nr	nr
05/03/01	nr	nr	nr	05/03/02	13.1	10.1	11.3	05/03/03	nr	nr	nr
05/04/01	nr	nr	nr	05/04/02	13.7	10.6	11.9	05/04/03	nr	nr	nr
05/05/01	nr	nr	nr	05/05/02	14.0	11.1	12.4	05/05/03	nr	nr	nr
05/06/01	nr	nr	nr	05/06/02	14.0	10.9	12.3	05/06/03	nr	nr	nr
05/07/01	nr	nr	nr	05/07/02	14.0	11.1	12.4	05/07/03	nr	nr	nr
05/08/01	nr	nr	nr	05/08/02	13.5	10.1	11.6	05/08/03	nr	nr	nr
05/09/01	nr	nr	nr	05/09/02	13.5	10.1	11.6	05/09/03	nr	nr	nr
05/10/01	nr	nr	nr	05/10/02	12.8	10.5	11.5	05/10/03	nr	nr	nr
05/11/01	nr	nr	nr	05/11/02	13.4	9.7	11.3	05/11/03	nr	nr	nr
05/12/01	nr	nr	nr	05/12/02	14.0	10.6	12.0	05/12/03	nr	nr	nr
05/13/01	nr	nr	nr	05/13/02	15.1	11.8	13.1	05/13/03	nr	nr	nr
05/14/01	nr	nr	nr	05/14/02	14.9	11.7	13.1	05/14/03	nr	nr	nr
05/15/01	nr	nr	nr	05/15/02	15.1	11.8	13.2	05/15/03	nr	nr	nr
05/16/01	nr	nr	nr	05/16/02	15.6	12.0	13.7	05/16/03	nr	nr	nr
05/17/01	nr	nr	nr	05/17/02	15.4	13.1	14.0	05/17/03	nr	nr	nr
05/18/01	nr	nr	nr	05/18/02	14.9	12.9	13.6	05/18/03	nr	nr	nr
05/19/01	nr	nr	nr	05/19/02	12.9	10.9	12.1	05/19/03	nr	nr	nr
05/20/01	nr	nr	nr	05/20/02	10.8	8.7	9.6	05/20/03	nr	nr	nr
05/21/01	nr	nr	nr	05/21/02	9.4	8.3	8.7	05/21/03	nr	nr	nr
05/22/01	nr	nr	nr	05/22/02	10.5	8.1	9.2	05/22/03	nr	nr	nr
05/23/01	nr	nr	nr	05/23/02	11.7	8.9	10.0	05/23/03	nr	nr	nr
05/24/01	nr	nr	nr	05/24/02	13.4	10.6	11.5	05/24/03	nr	nr	nr
05/25/01	nr	nr	nr	05/25/02	14.3	11.7	12.7	05/25/03	nr	nr	nr
05/26/01	nr	nr	nr	05/26/02	15.1	12.6	13.4	05/26/03	nr	nr	nr
05/27/01	nr	nr	nr	05/27/02	14.8	13.2	13.7	05/27/03	nr	nr	nr
05/28/01	nr	nr	nr	05/28/02	14.8	12.8	13.6	05/28/03	nr	nr	nr
05/29/01	nr	nr	nr	05/29/02	16.5	13.7	14.8	05/29/03	nr	nr	nr
05/30/01	nr	nr	nr	05/30/02	18.0	15.4	16.3	05/30/03	nr	nr	nr
05/31/01	nr	nr	nr	05/31/02	18.6	16.2	17.1	05/31/03	nr	nr	nr
06/01/01	nr	nr	nr	06/01/02	17.8	16.2	16.8	06/01/03	nr	nr	nr
06/02/01	nr	nr	nr	06/02/02	17.0	15.1	16.0	06/02/03	nr	nr	nr
06/03/01	nr	nr	nr	06/03/02	16.4	14.6	15.4	06/03/03	nr	nr	nr
06/04/01	nr	nr	nr	06/04/02	16.4	14.3	15.3	06/04/03	nr	nr	nr
06/05/01	nr	nr	nr	06/05/02	17.8	15.4	16.4	06/05/03	nr	nr	nr
06/06/01	nr	nr	nr	06/06/02	19.7	16.1	17.5	06/06/03	nr	nr	nr
06/07/01	nr	nr	nr	06/07/02	19.1	15.7	17.1	06/07/03	nr	nr	nr
06/08/01	nr	nr	nr	06/08/02	18.1	15.1	16.3	06/08/03	nr	nr	nr
06/09/01	nr	nr	nr	06/09/02	16.8	13.5	14.9	06/09/03	nr	nr	nr
06/10/01	nr	nr	nr	06/10/02	17.0	13.4	14.7	06/10/03	nr	nr	nr
06/11/01	nr	nr	nr	06/11/02	17.8	13.9	15.4	06/11/03	nr	nr	nr
06/12/01	nr	nr	nr	06/12/02	18.4	14.5	16.1	06/12/03	nr	nr	nr
06/13/01	nr	nr	nr	06/13/02	18.9	14.9	16.5	06/13/03	nr	nr	nr
06/14/01	nr	nr	nr	06/14/02	19.1	15.6	16.9	06/14/03	nr	nr	nr
06/15/01	nr	nr	nr	06/15/02	19.3	15.4	17.0	06/15/03	nr	nr	nr
06/16/01	nr	nr	nr	06/16/02	18.9	15.4	16.8	06/16/03	nr	nr	nr
06/17/01	nr	nr	nr	06/17/02	18.9	15.3	16.8	06/17/03	nr	nr	nr
06/18/01	Thermograph installed			06/18/02	19.7	16.1	17.4	06/18/03	nr	nr	nr
06/19/01	20.2	17.5	19.0	06/19/02	19.7	16.1	17.5	06/19/03	nr	nr	nr
06/20/01	20.6	16.5	18.2	06/20/02	19.9	16.2	17.7	06/20/03	nr	nr	nr
06/21/01	21.2	17.3	18.9	06/21/02	19.7	16.5	17.8	06/21/03	nr	nr	nr
06/22/01	21.6	17.8	19.3	06/22/02	19.9	16.4	17.8	06/22/03	nr	nr	nr
06/23/01	20.6	17.5	18.8	06/23/02	20.4	16.8	18.2	06/23/03	nr	nr	nr
06/24/01	18.6	16.5	17.4	06/24/02	20.6	16.7	18.3	06/24/03	nr	nr	nr
06/25/01	16.7	15.8	16.3	06/25/02	20.9	17.0	18.6	06/25/03	Thermograph reinstalled		
06/26/01	16.1	15.1	15.5	06/26/02	19.1	17.6	18.0	06/26/03	16.7	15.4	16.4
06/27/01	15.1	14.5	14.8	06/27/02	21.0	17.5	19.0	06/27/03	17.6	15.4	16.5
06/28/01	17.8	13.7	15.3	06/28/02	21.4	17.8	19.2	06/28/03	18.4	16.2	17.3
06/29/01	18.9	14.8	16.5	06/29/02	21.7	18.1	19.6	06/29/03	18.1	16.2	17.2
06/30/01	19.6	15.8	17.2	06/30/02	22.0	18.4	19.8	06/30/03	17.4	15.5	16.6

APPENDIX E, Table 2 (continued). Butte Creek water temperatures (Celsius) at Chimney Rock Pool for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
07/01/01	20.4	16.4	18.0	07/01/02	21.7	17.8	19.4	07/01/03	17.0	14.9	16.0
07/02/01	20.9	16.7	18.4	07/02/02	21.7	18.1	19.6	07/02/03	16.7	14.6	15.7
07/03/01	20.7	17.5	18.8	07/03/02	21.4	17.8	19.3	07/03/03	16.7	14.3	15.5
07/04/01	20.7	18.1	19.3	07/04/02	21.2	17.8	19.2	07/04/03	17.1	14.7	15.9
07/05/01	21.9	18.5	19.8	07/05/02	21.4	17.8	19.2	07/05/03	17.9	15.4	16.5
07/06/01	21.4	18.1	19.5	07/06/02	21.7	18.0	19.5	07/06/03	18.2	15.9	16.9
07/07/01	20.9	18.0	19.1	07/07/02	21.5	18.3	19.6	07/07/03	18.6	16.3	17.3
07/08/01	21.2	17.3	19.0	07/08/02	21.7	18.0	19.5	07/08/03	18.7	15.9	17.1
07/09/01	21.6	17.8	19.3	07/09/02	22.0	18.0	19.7	07/09/03	18.9	15.9	17.1
07/10/01	21.7	18.3	19.7	07/10/02	22.5	18.4	20.2	07/10/03	19.5	16.3	17.5
07/11/01	21.6	18.6	19.7	07/11/02	22.9	19.1	20.7	07/11/03	19.5	16.7	17.8
07/12/01	21.2	18.0	19.3	07/12/02	23.2	20.2	21.3	07/12/03	19.7	17.0	18.0
07/13/01	21.2	17.7	19.0	07/13/02	23.2	19.7	21.3	07/13/03	19.9	17.1	18.2
07/14/01	20.9	17.2	18.7	07/14/02	23.4	19.9	21.3	07/14/03	19.5	16.8	17.9
07/15/01	20.2	16.9	18.2	07/15/02	22.4	19.4	20.7	07/15/03	20.4	17.0	18.2
07/16/01	19.8	16.7	17.9	07/16/02	21.7	18.3	19.8	07/16/03	20.5	17.1	18.3
07/17/01	19.6	16.1	17.5	07/17/02	21.5	18.0	19.4	07/17/03	20.5	16.8	18.3
07/18/01	19.6	15.9	17.4	07/18/02	21.0	18.1	19.4	07/18/03	20.7	17.1	18.5
07/19/01	19.8	16.2	17.6	07/19/02	21.9	18.3	19.8	07/19/03	20.7	17.4	18.9
07/20/01	19.6	15.9	17.4	07/20/02	22.4	18.8	20.1	07/20/03	21.3	18.4	19.5
07/21/01	19.3	15.8	17.2	07/21/02	21.9	19.3	20.4	07/21/03	22.7	19.2	20.5
07/22/01	19.3	15.4	17.1	07/22/02	22.4	19.4	20.6	07/22/03	23.2	19.7	21.1
07/23/01	20.1	16.1	17.7	07/23/02	21.9	18.6	19.9	07/23/03	23.0	20.5	21.5
07/24/01	20.9	16.9	18.5	07/24/02	21.5	18.1	19.5	07/24/03	23.0	20.5	21.4
07/25/01	21.6	17.7	19.2	07/25/02	21.2	17.6	19.1	07/25/03	22.5	19.9	20.9
07/26/01	21.9	18.3	19.7	07/26/02	21.0	17.5	19.0	07/26/03	22.3	19.2	20.5
07/27/01	21.6	18.0	19.4	07/27/02	21.7	18.0	19.5	07/27/03	22.2	18.7	20.2
07/28/01	20.9	17.2	18.7	07/28/02	22.0	18.4	20.0	07/28/03	22.5	18.7	20.3
07/29/01	20.4	17.0	18.4	07/29/02	22.2	18.9	20.2	07/29/03	22.8	19.5	20.9
07/30/01	20.2	17.2	18.3	07/30/02	22.2	19.4	20.5	07/30/03	22.8	20.2	21.2
07/31/01	20.6	17.0	18.5	07/31/02	22.0	19.6	20.5	07/31/03	22.2	19.9	20.7
08/01/01	20.6	17.0	18.4	08/01/02	22.2	19.1	20.3	08/01/03	20.8	19.4	20.1
08/02/01	20.6	17.0	18.4	08/02/02	21.9	18.8	20.1	08/02/03	19.9	19.1	19.6
08/03/01	20.2	16.5	18.1	08/03/02	21.7	18.6	19.8	08/03/03	21.0	17.9	19.2
08/04/01	20.1	16.9	18.0	08/04/02	19.9	18.0	18.9	08/04/03	21.0	17.8	19.0
08/05/01	20.2	16.7	18.2	08/05/02	19.6	16.7	17.9	08/05/03	20.4	17.4	18.7
08/06/01	20.6	16.9	18.4	08/06/02	18.9	15.9	17.1	08/06/03	19.9	17.0	18.2
08/07/01	20.9	17.3	18.8	08/07/02	18.6	15.3	16.7	08/07/03	19.4	16.3	17.6
08/08/01	21.6	18.0	19.3	08/08/02	18.9	15.3	16.8	08/08/03	19.1	15.9	17.2
08/09/01	22.1	18.6	19.9	08/09/02	19.6	15.7	17.3	08/09/03	19.1	15.7	17.1
08/10/01	21.7	18.5	19.7	08/10/02	20.2	16.5	18.0	08/10/03	19.2	15.9	17.2
08/11/01	21.2	17.7	19.1	08/11/02	20.7	17.0	18.5	08/11/03	19.1	15.9	17.1
08/12/01	20.7	17.7	18.8	08/12/02	21.0	17.6	19.0	08/12/03	18.6	15.2	16.6
08/13/01	20.4	17.2	18.5	08/13/02	21.7	18.4	19.7	08/13/03	18.4	15.1	16.4
08/14/01	20.4	17.0	18.3	08/14/02	21.9	18.8	20.0	08/14/03	18.6	15.4	16.6
08/15/01	20.1	16.4	17.9	08/15/02	22.0	19.1	20.3	08/15/03	18.6	15.4	16.7
08/16/01	19.9	16.2	17.7	08/16/02	22.2	19.3	20.4	08/16/03	18.4	14.9	16.4
08/17/01	19.1	16.1	17.3	08/17/02	21.4	18.9	19.9	08/17/03	18.6	15.2	16.6
08/18/01	19.8	16.2	17.6	08/18/02	21.2	18.4	19.6	08/18/03	19.1	15.7	17.1
08/19/01	19.6	16.2	17.6	08/19/02	20.4	17.8	18.9	08/19/03	19.5	16.2	17.5
08/20/01	19.3	16.2	17.5	08/20/02	19.7	17.3	18.3	08/20/03	19.5	16.3	17.7
08/21/01	18.9	15.9	17.2	08/21/02	18.9	16.5	17.5	08/21/03	18.2	17.0	17.5
08/22/01	18.8	15.8	17.0	08/22/02	18.8	15.9	17.1	08/22/03	17.8	16.7	17.1
08/23/01	18.6	15.9	17.0	08/23/02	18.4	15.6	16.8	08/23/03	18.9	15.9	17.0
08/24/01	19.3	15.9	17.3	08/24/02	18.4	15.3	16.6	08/24/03	19.1	15.9	17.2
08/25/01	19.4	16.1	17.4	08/25/02	18.4	15.3	16.6	08/25/03	19.1	15.9	17.2
08/26/01	19.8	16.2	17.6	08/26/02	18.9	15.9	17.0	08/26/03	19.2	16.3	17.5
08/27/01	20.1	16.5	18.0	08/27/02	19.3	16.1	17.3	08/27/03	19.5	16.7	17.7
08/28/01	20.2	16.9	18.2	08/28/02	19.7	16.5	17.8	08/28/03	18.9	15.9	17.2
08/29/01	20.4	17.2	18.4	08/29/02	19.9	17.0	18.1	08/29/03	18.4	15.4	16.7
08/30/01	20.1	17.2	18.3	08/30/02	19.7	17.0	18.1	08/30/03	18.6	15.5	16.9
08/31/01	19.9	17.2	18.2	08/31/02	19.6	16.7	17.9	08/31/03	18.7	16.0	17.2

APPENDIX E, Table 2 (continued). Butte Creek water temperatures (Celsius) at Chimney Rock Pool for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
09/01/01	20.1	17.0	18.2	09/01/02	19.7	16.7	17.9	09/01/03	19.4	16.3	17.6
09/02/01	19.8	16.7	17.9	09/02/02	19.9	16.8	18.1	09/02/03	19.9	16.8	18.0
09/03/01	19.6	16.5	17.7	09/03/02	19.4	16.7	17.8	09/03/03	18.7	17.1	17.8
09/04/01	19.3	16.5	17.6	09/04/02	18.8	16.4	17.4	09/04/03	19.5	17.1	18.1
09/05/01	18.8	15.9	17.1	09/05/02	18.0	15.4	16.5	09/05/03	20.2	17.4	18.5
09/06/01	18.3	15.3	16.6	09/06/02	17.0	14.6	15.5	09/06/03	19.4	17.0	17.9
09/07/01	17.8	15.0	16.1	09/07/02	16.2	13.5	14.6	09/07/03	17.1	16.0	16.6
09/08/01	18.0	14.8	16.1	09/08/02	15.9	13.1	14.2	09/08/03	17.1	15.4	16.0
09/09/01	17.8	15.0	16.2	09/09/02	16.2	13.1	14.3	09/09/03	15.4	14.9	15.1
09/10/01	17.7	15.1	16.1	09/10/02	16.5	13.5	14.8	09/10/03	16.5	13.8	15.0
09/11/01	15.9	15.3	15.5	09/11/02	17.0	14.0	15.2	09/11/03	17.0	14.0	15.2
09/12/01	17.2	14.7	15.6	09/12/02	17.3	14.5	15.6	09/12/03	17.6	14.7	15.9
09/13/01	17.7	15.0	16.0	09/13/02	17.5	14.8	15.8	09/13/03	17.6	14.9	16.0
09/14/01	18.1	15.4	16.4	09/14/02	17.2	14.8	15.7	09/14/03	17.4	14.7	15.9
09/15/01	18.1	15.6	16.6	09/15/02	16.4	14.9	15.6	09/15/03	17.3	14.9	15.9
09/16/01	18.0	15.6	16.6	09/16/02	16.8	14.3	15.4	09/16/03	16.5	14.6	15.4
09/17/01	18.1	15.4	16.6	09/17/02	16.5	14.3	15.2	09/17/03	16.2	13.8	14.8
09/18/01	18.3	15.6	16.6	09/18/02	16.8	14.2	15.3	09/18/03	15.5	12.9	14.0
09/19/01	18.3	15.8	16.7	09/19/02	16.8	14.0	15.2	09/19/03	15.7	13.0	14.1
09/20/01	18.1	15.6	16.6	09/20/02	17.2	14.5	15.6	09/20/03	16.2	13.5	14.5
09/21/01	17.7	15.0	16.1	09/21/02	17.5	14.8	15.9	09/21/03	16.5	13.8	14.9
09/22/01	17.0	14.7	15.6	09/22/02	17.5	14.9	16.0	09/22/03	16.8	14.1	15.3
09/23/01	16.4	14.5	15.3	09/23/02	17.5	14.8	15.9	09/23/03	16.8	14.4	15.5
09/24/01	15.8	14.2	14.9	09/24/02	17.2	14.6	15.7	09/24/03	17.1	14.7	15.7
09/25/01	16.4	14.7	15.3	09/25/02	17.0	14.5	15.5	09/25/03	17.1	14.7	15.8
09/26/01	16.1	13.7	14.6	09/26/02	16.7	14.2	15.2	09/26/03	17.1	14.6	15.7
09/27/01	15.9	13.9	14.6	09/27/02	16.2	14.3	15.1	09/27/03	17.1	15.1	15.9
09/28/01	15.6	13.3	14.2	09/28/02	15.9	13.9	14.7	09/28/03	16.8	14.6	15.6
09/29/01	15.8	13.1	14.1	09/29/02	15.6	14.0	14.5	09/29/03	16.5	14.6	15.3
09/30/01	15.9	13.3	14.3	09/30/02	15.1	13.2	14.0	09/30/03	15.9	13.7	14.6
10/01/01	16.4	13.9	14.8	10/01/02	14.0	12.0	12.8	10/01/03	15.9	14.0	14.7
10/02/01	16.7	14.3	15.2	10/02/02	12.9	10.9	11.8	10/02/03	15.9	13.8	14.6
10/03/01	16.7	14.3	15.3	10/03/02	12.3	10.5	11.3	10/03/03	15.5	13.8	14.6
10/04/01	16.5	14.2	15.1	10/04/02	13.2	10.9	11.9	10/04/03	16.0	14.3	14.9
10/05/01	15.4	14.0	14.6	10/05/02	13.9	11.5	12.5	10/05/03	15.9	14.1	14.8
10/06/01	15.0	13.1	13.9	10/06/02	14.6	12.3	13.3	10/06/03	14.6	14.0	14.2
10/07/01	14.7	12.8	13.5	10/07/02	15.1	12.8	13.7	10/07/03	nr	nr	nr
10/08/01	14.8	13.0	13.7	10/08/02	14.9	12.8	13.6	10/08/03	nr	nr	nr
10/09/01	14.0	12.2	13.0	10/09/02	14.6	12.8	13.6	10/09/03	nr	nr	nr
10/10/01	13.3	11.4	12.2	10/10/02	14.6	13.1	13.6	10/10/03	nr	nr	nr
10/11/01	13.3	11.7	12.3	10/11/02	14.0	12.2	12.9	10/11/03	nr	nr	nr
10/12/01	13.3	11.2	12.0	10/12/02	13.2	11.2	12.1	10/12/03	nr	nr	nr
10/13/01	13.3	11.1	12.0	10/13/02	12.9	11.1	11.8	10/13/03	nr	nr	nr
10/14/01	13.1	11.4	12.2	10/14/02	12.9	11.1	11.8	10/14/03	nr	nr	nr
10/15/01	13.3	11.4	12.2	10/15/02	12.8	10.9	11.6	10/15/03	nr	nr	nr
10/16/01	13.3	11.7	12.4	10/16/02	12.5	10.6	11.5	10/16/03	nr	nr	nr
10/17/01	13.4	11.9	12.5	10/17/02	12.3	10.5	11.3	10/17/03	nr	nr	nr
10/18/01	13.4	11.6	12.3	10/18/02	12.2	10.8	11.3	10/18/03	nr	nr	nr
10/19/01	12.6	11.2	11.9	10/19/02	12.5	10.8	11.4	10/19/03	nr	nr	nr
10/20/01	12.3	10.9	11.6	10/20/02	12.5	10.9	11.5	10/20/03	nr	nr	nr
10/21/01	12.3	10.6	11.3	10/21/02	12.2	10.6	11.2	10/21/03	nr	nr	nr
10/22/01	12.2	10.6	11.2	10/22/02	10.9	10.5	10.6	10/22/03	nr	nr	nr
10/23/01	12.2	10.8	11.2	10/23/02	Thermograph lost			10/23/03	nr	nr	nr
10/24/01	11.4	9.7	10.4	10/24/02	nr	nr	nr	10/24/03	nr	nr	nr
10/25/01	11.1	9.7	10.2	10/25/02	nr	nr	nr	10/25/03	nr	nr	nr
10/26/01	11.1	9.7	10.3	10/26/02	nr	nr	nr	10/26/03	nr	nr	nr
10/27/01	11.1	9.9	10.3	10/27/02	nr	nr	nr	10/27/03	nr	nr	nr
10/28/01	10.8	10.2	10.5	10/28/02	nr	nr	nr	10/28/03	nr	nr	nr
10/29/01	11.1	10.3	10.7	10/29/02	nr	nr	nr	10/29/03	nr	nr	nr
10/30/01	11.4	10.8	11.0	10/30/02	nr	nr	nr	10/30/03	nr	nr	nr
10/31/01	11.9	10.6	11.1	10/31/02	nr	nr	nr	10/31/03	nr	nr	nr

APPENDIX E, Table 2 (continued). Butte Creek water temperatures (Celsius) at Chimney Rock Pool for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
11/01/01	11.1	9.7	10.3	11/01/02	nr	nr	nr	11/01/03	nr	nr	nr
11/02/01	10.6	9.4	9.9	11/02/02	nr	nr	nr	11/02/03	nr	nr	nr
11/03/01	10.3	9.1	9.7	11/03/02	nr	nr	nr	11/03/03	nr	nr	nr
11/04/01	10.5	9.2	9.8	11/04/02	nr	nr	nr	11/04/03	nr	nr	nr
11/05/01	10.3	9.2	9.7	11/05/02	nr	nr	nr	11/05/03	nr	nr	nr
11/06/01	10.2	9.2	9.6	11/06/02	nr	nr	nr	11/06/03	nr	nr	nr
11/07/01	9.4	8.2	8.8	11/07/02	nr	nr	nr	11/07/03	nr	nr	nr
11/08/01	9.2	8.0	8.5	11/08/02	nr	nr	nr	11/08/03	nr	nr	nr
11/09/01	9.2	8.3	8.7	11/09/02	nr	nr	nr	11/09/03	nr	nr	nr
11/10/01	9.4	8.6	8.9	11/10/02	nr	nr	nr	11/10/03	nr	nr	nr
11/11/01	10.3	9.1	9.6	11/11/02	nr	nr	nr	11/11/03	nr	nr	nr
11/12/01	10.5	10.0	10.2	11/12/02	nr	nr	nr	11/12/03	nr	nr	nr
11/13/01	10.1	9.4	9.7	11/13/02	nr	nr	nr	11/13/03	nr	nr	nr
11/14/01	10.0	9.2	9.5	11/14/02	nr	nr	nr	11/14/03	nr	nr	nr
11/15/01	10.1	9.2	9.7	11/15/02	nr	nr	nr	11/15/03	nr	nr	nr
11/16/01	9.8	9.4	9.7	11/16/02	nr	nr	nr	11/16/03	nr	nr	nr
11/17/01	10.1	9.5	9.7	11/17/02	nr	nr	nr	11/17/03	nr	nr	nr
11/18/01	9.7	8.6	9.2	11/18/02	nr	nr	nr	11/18/03	nr	nr	nr
11/19/01	9.4	8.7	9.1	11/19/02	nr	nr	nr	11/19/03	nr	nr	nr
11/20/01	9.7	9.2	9.4	11/20/02	nr	nr	nr	11/20/03	nr	nr	nr
11/21/01	10.3	9.7	9.9	11/21/02	nr	nr	nr	11/21/03	nr	nr	nr
11/22/01	10.5	9.2	10.0	11/22/02	nr	nr	nr	11/22/03	nr	nr	nr
11/23/01	9.1	7.8	8.3	11/23/02	nr	nr	nr	11/23/03	nr	nr	nr
11/24/01	8.7	7.8	8.2	11/24/02	nr	nr	nr	11/24/03	nr	nr	nr
11/25/01	7.8	6.9	7.3	11/25/02	nr	nr	nr	11/25/03	nr	nr	nr
11/26/01	6.9	5.6	6.4	11/26/02	nr	nr	nr	11/26/03	nr	nr	nr
11/27/01	5.8	4.9	5.4	11/27/02	nr	nr	nr	11/27/03	nr	nr	nr
11/28/01	5.6	5.0	5.4	11/28/02	nr	nr	nr	11/28/03	nr	nr	nr
11/29/01	5.0	4.1	4.6	11/29/02	nr	nr	nr	11/29/03	nr	nr	nr
11/30/01	4.7	4.1	4.4	11/30/02	nr	nr	nr	11/30/03	nr	nr	nr
12/01/01	7.0	4.7	5.9	12/01/02	nr	nr	nr	12/01/03	nr	nr	nr
12/02/01	7.8	6.7	7.4	12/02/02	nr	nr	nr	12/02/03	nr	nr	nr
12/03/01	7.4	6.1	7.0	12/03/02	nr	nr	nr	12/03/03	nr	nr	nr
12/04/01	6.1	5.3	5.8	12/04/02	nr	nr	nr	12/04/03	nr	nr	nr
12/05/01	6.1	5.2	5.7	12/05/02	nr	nr	nr	12/05/03	nr	nr	nr
12/06/01	7.5	5.8	6.8	12/06/02	nr	nr	nr	12/06/03	nr	nr	nr
12/07/01	7.0	6.3	6.6	12/07/02	nr	nr	nr	12/07/03	nr	nr	nr
12/08/01	6.6	6.0	6.3	12/08/02	nr	nr	nr	12/08/03	nr	nr	nr
12/09/01	6.7	5.8	6.3	12/09/02	nr	nr	nr	12/09/03	nr	nr	nr
12/10/01	5.8	5.0	5.3	12/10/02	nr	nr	nr	12/10/03	nr	nr	nr
12/11/01	5.0	4.4	4.7	12/11/02	nr	nr	nr	12/11/03	nr	nr	nr
12/12/01	5.0	4.2	4.7	12/12/02	nr	nr	nr	12/12/03	nr	nr	nr
12/13/01	5.5	4.9	5.2	12/13/02	nr	nr	nr	12/13/03	nr	nr	nr
12/14/01	5.5	4.1	4.8	12/14/02	nr	nr	nr	12/14/03	nr	nr	nr
12/15/01	4.2	3.6	3.9	12/15/02	nr	nr	nr	12/15/03	nr	nr	nr
12/16/01	4.9	4.1	4.5	12/16/02	nr	nr	nr	12/16/03	nr	nr	nr
12/17/01	6.6	5.0	6.0	12/17/02	nr	nr	nr	12/17/03	nr	nr	nr
12/18/01	6.9	6.6	6.7	12/18/02	nr	nr	nr	12/18/03	nr	nr	nr
12/19/01	7.2	6.7	6.9	12/19/02	nr	nr	nr	12/19/03	nr	nr	nr
12/20/01	7.0	6.1	6.5	12/20/02	nr	nr	nr	12/20/03	nr	nr	nr
12/21/01	6.6	6.0	6.2	12/21/02	nr	nr	nr	12/21/03	nr	nr	nr
12/22/01	6.6	6.4	6.5	12/22/02	nr	nr	nr	12/22/03	nr	nr	nr
12/23/01	6.4	6.0	6.2	12/23/02	nr	nr	nr	12/23/03	nr	nr	nr
12/24/01	6.0	5.3	5.7	12/24/02	nr	nr	nr	12/24/03	nr	nr	nr
12/25/01	6.4	5.6	5.9	12/25/02	nr	nr	nr	12/25/03	nr	nr	nr
12/26/01	7.2	6.4	6.8	12/26/02	nr	nr	nr	12/26/03	nr	nr	nr
12/27/01	7.2	6.9	7.0	12/27/02	nr	nr	nr	12/27/03	nr	nr	nr
12/28/01	7.4	6.9	7.1	12/28/02	nr	nr	nr	12/28/03	nr	nr	nr
12/29/01	7.8	7.4	7.5	12/29/02	nr	nr	nr	12/29/03	nr	nr	nr
12/30/01	8.7	7.8	8.0	12/30/02	nr	nr	nr	12/30/03	nr	nr	nr
12/31/01	9.1	8.6	8.8	12/31/02	nr	nr	nr	12/31/03	nr	nr	nr

APPENDIX E, Table 3. Butte Creek water temperatures (Celsius) at Pool 4 for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
05/01/01	nr	nr	nr	05/01/02	10.4	8.1	9.0	05/01/03	9.8	8.6	9.0
05/02/01	nr	nr	nr	05/02/02	12.6	8.5	10.1	05/02/03	9.8	9.3	9.5
05/03/01	nr	nr	nr	05/03/02	13.8	10.1	11.6	05/03/03	9.3	9.0	9.2
05/04/01	nr	nr	nr	05/04/02	14.6	10.7	12.3	05/04/03	9.3	8.6	8.9
05/05/01	nr	nr	nr	05/05/02	15.1	11.3	12.9	05/05/03	9.8	8.7	9.2
05/06/01	nr	nr	nr	05/06/02	14.9	11.3	12.9	05/06/03	9.8	8.9	9.3
05/07/01	nr	nr	nr	05/07/02	14.7	11.3	12.9	05/07/03	9.6	9.0	9.3
05/08/01	nr	nr	nr	05/08/02	14.4	10.6	12.3	05/08/03	9.5	8.1	8.7
05/09/01	nr	nr	nr	05/09/02	14.4	10.6	12.3	05/09/03	8.6	7.5	8.0
05/10/01	nr	nr	nr	05/10/02	13.3	10.9	12.1	05/10/03	9.3	8.2	8.8
05/11/01	nr	nr	nr	05/11/02	14.3	10.1	12.0	05/11/03	9.9	8.7	9.3
05/12/01	nr	nr	nr	05/12/02	15.1	10.9	12.7	05/12/03	10.7	9.2	10.0
05/13/01	nr	nr	nr	05/13/02	15.7	11.9	13.7	05/13/03	11.3	9.9	10.7
05/14/01	nr	nr	nr	05/14/02	15.5	11.9	13.7	05/14/03	11.8	10.6	11.3
05/15/01	nr	nr	nr	05/15/02	15.8	12.3	13.9	05/15/03	11.8	10.9	11.5
05/16/01	nr	nr	nr	05/16/02	16.5	12.4	14.1	05/16/03	11.7	10.4	11.1
05/17/01	nr	nr	nr	05/17/02	16.5	13.3	14.6	05/17/03	11.2	9.8	10.5
05/18/01	nr	nr	nr	05/18/02	15.8	13.0	14.0	05/18/03	10.7	9.5	10.2
05/19/01	nr	nr	nr	05/19/02	13.2	11.3	12.3	05/19/03	11.3	9.8	10.6
05/20/01	nr	nr	nr	05/20/02	11.2	9.2	10.1	05/20/03	12.0	10.7	11.4
05/21/01	nr	nr	nr	05/21/02	10.1	8.4	9.1	05/21/03	12.7	11.3	12.1
05/22/01	nr	nr	nr	05/22/02	11.5	8.2	9.5	05/22/03	14.0	12.4	13.1
05/23/01	nr	nr	nr	05/23/02	12.9	9.0	10.4	05/23/03	13.7	12.7	13.3
05/24/01	nr	nr	nr	05/24/02	14.4	10.4	11.8	05/24/03	13.4	12.6	13.1
05/25/01	nr	nr	nr	05/25/02	15.4	11.6	12.9	05/25/03	13.0	12.3	12.7
05/26/01	nr	nr	nr	05/26/02	16.2	12.6	13.8	05/26/03	12.6	11.8	12.3
05/27/01	nr	nr	nr	05/27/02	15.4	13.0	14.0	05/27/03	13.2	11.8	12.5
05/28/01	nr	nr	nr	05/28/02	15.8	12.9	14.0	05/28/03	13.8	13.0	13.4
05/29/01	nr	nr	nr	05/29/02	17.6	13.6	15.0	05/29/03	13.7	12.7	13.3
05/30/01	nr	nr	nr	05/30/02	19.0	15.4	16.6	05/30/03	13.2	12.3	12.7
05/31/01	nr	nr	nr	05/31/02	19.7	16.2	17.4	05/31/03	13.7	12.6	13.1
06/01/01	nr	nr	nr	06/01/02	18.7	16.2	17.2	06/01/03	13.8	12.9	13.4
06/02/01	nr	nr	nr	06/02/02	17.9	15.2	16.3	06/02/03	14.1	13.0	13.6
06/03/01	nr	nr	nr	06/03/02	17.3	14.7	15.7	06/03/03	14.8	13.5	14.1
06/04/01	nr	nr	nr	06/04/02	17.3	14.3	15.5	06/04/03	15.2	14.0	14.5
06/05/01	nr	nr	nr	06/05/02	18.7	15.4	16.5	06/05/03	15.5	14.1	14.8
06/06/01	nr	nr	nr	06/06/02	20.5	16.0	17.8	06/06/03	15.7	14.6	15.1
06/07/01	nr	nr	nr	06/07/02	19.9	15.7	17.8	06/07/03	16.0	14.9	15.4
06/08/01	nr	nr	nr	06/08/02	18.7	15.2	16.9	06/08/03	16.5	15.4	15.9
06/09/01	nr	nr	nr	06/09/02	17.8	13.8	15.7	06/09/03	16.7	15.5	16.1
06/10/01	nr	nr	nr	06/10/02	18.1	13.3	15.5	06/10/03	16.2	15.1	15.5
06/11/01	nr	nr	nr	06/11/02	18.6	14.0	15.9	06/11/03	15.5	14.6	15.1
06/12/01	nr	nr	nr	06/12/02	19.2	14.6	16.7	06/12/03	15.5	14.4	15.0
06/13/01	nr	nr	nr	06/13/02	19.7	15.1	17.2	06/13/03	15.5	14.6	15.1
06/14/01	nr	nr	nr	06/14/02	19.9	15.5	17.5	06/14/03	15.5	14.3	15.0
06/15/01	nr	nr	nr	06/15/02	20.0	15.7	17.6	06/15/03	15.7	14.4	15.1
06/16/01	nr	nr	nr	06/16/02	19.7	15.5	17.5	06/16/03	16.3	14.9	15.6
06/17/01	nr	nr	nr	06/17/02	19.7	15.4	17.4	06/17/03	17.3	15.9	16.5
06/18/01	nr	nr	nr	06/18/02	20.3	16.0	18.1	06/18/03	17.5	16.5	17.0
06/19/01	Thermograph first installed			06/19/02	20.5	16.2	18.3	06/19/03	17.0	16.0	16.6
06/20/01	21.6	20.3	21.1	06/20/02	20.7	16.3	18.4	06/20/03	18.1	15.5	16.6
06/21/01	22.3	17.7	19.9	06/21/02	20.3	16.6	18.5	06/21/03	17.3	14.7	16.0
06/22/01	22.6	18.4	20.4	06/22/02	20.5	16.3	18.4	06/22/03	17.0	14.4	15.5
06/23/01	21.6	18.1	19.8	06/23/02	21.0	16.8	18.9	06/23/03	16.3	13.8	15.0
06/24/01	19.7	16.9	18.4	06/24/02	21.2	17.0	19.0	06/24/03	16.0	13.2	14.5
06/25/01	18.1	16.6	17.3	06/25/02	21.7	17.1	19.3	06/25/03	17.0	13.7	15.1
06/26/01	17.1	15.8	16.5	06/26/02	21.7	17.8	19.6	06/26/03	17.9	14.6	16.0
06/27/01	16.5	15.3	15.8	06/27/02	21.8	17.6	19.7	06/27/03	18.9	15.7	17.1
06/28/01	19.0	14.4	16.4	06/28/02	22.2	18.1	20.0	06/28/03	19.7	16.6	17.9
06/29/01	20.0	15.2	17.4	06/29/02	22.5	18.2	20.2	06/29/03	19.4	16.6	17.7
06/30/01	20.6	16.1	18.3	06/30/02	22.7	18.6	20.6	06/30/03	18.9	16.0	17.1

APPENDIX E, Table 3 (continued). Butte Creek water temperatures (Celsius) at Pool 4 for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
07/01/01	21.5	16.9	19.1	07/01/02	22.5	17.9	20.2	07/01/03	18.2	15.4	16.5
07/02/01	21.8	17.2	19.5	07/02/02	22.3	18.4	20.4	07/02/03	17.9	15.1	16.2
07/03/01	21.6	17.9	19.7	07/03/02	22.0	17.9	20.0	07/03/03	17.9	14.7	16.1
07/04/01	22.0	18.7	20.4	07/04/02	22.0	17.9	20.0	07/04/03	18.4	15.2	16.5
07/05/01	23.0	19.0	20.9	07/05/02	22.2	17.9	20.0	07/05/03	19.2	15.9	17.1
07/06/01	22.3	18.5	20.6	07/06/02	22.5	18.2	20.2	07/06/03	19.5	16.3	17.6
07/07/01	21.8	18.5	20.2	07/07/02	22.3	18.4	20.3	07/07/03	19.9	16.8	17.9
07/08/01	22.3	18.1	20.1	07/08/02	22.5	18.1	20.2	07/08/03	20.0	16.3	17.8
07/09/01	22.5	18.4	20.4	07/09/02	22.7	18.1	20.4	07/09/03	20.3	16.2	17.9
07/10/01	22.6	18.7	20.8	07/10/02	23.3	18.7	21.0	07/10/03	20.8	16.6	18.4
07/11/01	22.5	19.2	20.8	07/11/02	22.0	19.4	20.4	07/11/03	21.0	17.0	18.6
07/12/01	22.1	18.4	20.2	07/12/02	23.5	20.3	22.0	07/12/03	21.2	17.3	18.9
07/13/01	22.3	18.2	20.2	07/13/02	24.0	20.2	21.9	07/13/03	21.2	17.4	18.9
07/14/01	21.8	17.9	19.8	07/14/02	23.8	20.2	21.9	07/14/03	21.0	17.1	18.7
07/15/01	21.1	17.4	19.4	07/15/02	23.0	19.5	21.3	07/15/03	21.3	17.3	19.0
07/16/01	20.6	17.2	19.0	07/16/02	22.3	18.6	20.5	07/16/03	21.7	17.3	19.3
07/17/01	20.5	16.6	18.6	07/17/02	22.2	18.2	20.2	07/17/03	21.7	17.3	19.3
07/18/01	20.6	16.6	18.6	07/18/02	21.8	18.4	20.2	07/18/03	21.8	17.4	19.6
07/19/01	20.8	16.8	18.7	07/19/02	22.5	18.7	20.6	07/19/03	21.8	17.9	19.9
07/20/01	20.5	16.5	18.5	07/20/02	23.0	19.0	20.9	07/20/03	22.5	18.9	20.5
07/21/01	20.3	16.3	18.3	07/21/02	22.7	19.5	21.1	07/21/03	23.7	19.5	21.5
07/22/01	20.5	16.1	18.3	07/22/02	22.8	19.5	21.2	07/22/03	24.2	20.2	22.1
07/23/01	21.1	16.6	18.8	07/23/02	22.5	18.9	20.7	07/23/03	24.2	20.8	22.5
07/24/01	22.0	17.4	19.6	07/24/02	22.2	18.4	20.3	07/24/03	24.0	21.2	22.4
07/25/01	22.6	18.2	20.4	07/25/02	21.7	17.9	19.9	07/25/03	23.7	20.5	22.0
07/26/01	22.8	18.9	20.8	07/26/02	21.7	17.8	19.8	07/26/03	23.5	19.7	21.5
07/27/01	22.5	18.4	20.5	07/27/02	22.2	18.4	20.3	07/27/03	23.3	19.4	21.3
07/28/01	21.8	17.7	19.8	07/28/02	22.7	18.9	20.8	07/28/03	23.5	19.4	21.4
07/29/01	21.5	17.7	19.7	07/29/02	22.7	19.0	20.9	07/29/03	24.0	19.9	21.9
07/30/01	21.3	17.7	19.5	07/30/02	22.7	19.5	21.1	07/30/03	23.7	20.7	22.2
07/31/01	21.6	17.6	19.6	07/31/02	22.7	19.9	21.3	07/31/03	23.2	20.2	21.7
08/01/01	21.6	17.6	19.6	08/01/02	22.7	19.4	21.0	08/01/03	22.0	20.0	21.1
08/02/01	21.5	17.4	19.5	08/02/02	22.5	19.0	20.8	08/02/03	21.0	20.0	20.5
08/03/01	21.1	17.1	19.1	08/03/02	22.2	18.9	20.6	08/03/03	22.3	18.7	20.4
08/04/01	21.0	17.2	19.1	08/04/02	20.7	18.2	19.6	08/04/03	22.0	18.2	20.1
08/05/01	21.3	17.2	19.2	08/05/02	20.2	17.1	18.7	08/05/03	21.3	17.9	19.7
08/06/01	21.6	17.4	19.5	08/06/02	19.7	16.2	18.0	08/06/03	21.0	17.6	19.2
08/07/01	22.0	17.9	19.9	08/07/02	19.4	15.7	17.5	08/07/03	20.5	16.8	18.6
08/08/01	22.5	18.5	20.5	08/08/02	19.4	15.4	17.4	08/08/03	20.2	16.5	18.3
08/09/01	22.8	19.0	20.9	08/09/02	20.0	16.0	18.0	08/09/03	20.2	16.3	18.2
08/10/01	22.5	18.9	20.6	08/10/02	20.5	16.8	18.7	08/10/03	20.3	16.3	18.2
08/11/01	22.0	18.2	20.1	08/11/02	21.0	17.3	19.2	08/11/03	20.0	16.3	18.1
08/12/01	21.6	18.1	19.9	08/12/02	21.7	17.8	19.7	08/12/03	19.7	15.9	17.7
08/13/01	21.3	17.6	19.4	08/13/02	22.3	18.6	20.4	08/13/03	19.5	15.5	17.5
08/14/01	21.3	17.2	19.3	08/14/02	22.3	19.0	20.7	08/14/03	19.5	15.9	17.7
08/15/01	21.0	16.9	19.0	08/15/02	22.7	19.2	20.9	08/15/03	19.7	15.9	17.7
08/16/01	20.8	16.8	18.8	08/16/02	22.7	19.4	21.1	08/16/03	19.4	15.4	17.4
08/17/01	20.0	16.6	18.4	08/17/02	21.8	19.2	20.6	08/17/03	19.7	15.7	17.6
08/18/01	20.6	16.8	18.7	08/18/02	21.8	18.6	20.3	08/18/03	20.0	16.2	18.1
08/19/01	20.5	16.8	18.7	08/19/02	21.0	18.1	19.7	08/19/03	20.3	16.6	18.5
08/20/01	20.0	16.6	18.5	08/20/02	20.3	17.4	18.9	08/20/03	20.5	16.8	18.6
08/21/01	19.7	16.5	18.2	08/21/02	19.7	16.8	18.3	08/21/03	19.4	17.4	18.5
08/22/01	19.7	16.3	18.0	08/22/02	19.4	16.2	17.8	08/22/03	18.6	17.6	18.1
08/23/01	19.5	16.3	18.0	08/23/02	19.0	15.8	17.5	08/23/03	20.1	16.4	18.1
08/24/01	20.2	16.5	18.3	08/24/02	19.0	15.7	17.4	08/24/03	20.1	16.6	18.4
08/25/01	20.3	16.6	18.4	08/25/02	19.0	15.5	17.3	08/25/03	20.3	16.6	18.4
08/26/01	20.5	16.8	18.6	08/26/02	19.5	16.2	17.8	08/26/03	20.4	17.0	18.6
08/27/01	21.0	17.1	19.0	08/27/02	19.7	16.2	17.9	08/27/03	20.6	17.0	18.8
08/28/01	21.0	17.2	19.2	08/28/02	20.2	16.6	18.4	08/28/03	19.8	16.6	18.3
08/29/01	21.1	17.7	19.4	08/29/02	20.2	17.1	18.7	08/29/03	19.5	15.9	17.7
08/30/01	20.8	17.6	19.3	08/30/02	20.3	17.3	18.8	08/30/03	19.6	16.1	17.9
08/31/01	20.6	17.6	19.1	08/31/02	20.2	17.0	18.6	08/31/03	19.6	16.7	18.1

APPENDIX E, Table 3 (continued). Butte Creek water temperatures (Celsius) at Pool 4 for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
09/01/01	20.8	17.4	19.1	09/01/02	20.2	17.0	18.6	09/01/03	20.4	17.0	18.6
09/02/01	20.5	17.2	18.9	09/02/02	20.3	17.1	18.8	09/02/03	20.8	17.4	19.0
09/03/01	20.5	17.1	18.8	09/03/02	19.9	17.0	18.4	09/03/03	19.5	17.7	18.7
09/04/01	20.2	17.1	18.6	09/04/02	19.2	16.6	18.0	09/04/03	20.8	17.7	19.1
09/05/01	19.7	16.3	18.0	09/05/02	18.4	15.8	17.2	09/05/03	21.1	17.8	19.4
09/06/01	19.0	16.0	17.6	09/06/02	17.4	14.9	16.2	09/06/03	20.3	17.4	18.9
09/07/01	18.7	15.3	17.1	09/07/02	16.8	14.0	15.4	09/07/03	18.6	16.7	17.5
09/08/01	18.9	15.3	17.1	09/08/02	16.5	13.5	15.0	09/08/03	18.2	15.9	17.0
09/09/01	18.5	15.5	17.1	09/09/02	16.6	13.3	15.0	09/09/03	17.0	15.6	16.2
09/10/01	18.5	15.7	17.0	09/10/02	17.0	14.0	15.4	09/10/03	16.6	14.7	15.4
09/11/01	17.4	15.7	16.2	09/11/02	17.4	14.4	15.9	09/11/03	18.0	14.5	16.2
09/12/01	18.1	15.2	16.5	09/12/02	17.8	14.7	16.2	09/12/03	18.5	15.3	16.8
09/13/01	18.4	15.3	16.9	09/13/02	17.9	15.1	16.4	09/13/03	18.5	15.5	17.0
09/14/01	19.0	15.8	17.4	09/14/02	17.6	14.9	16.4	09/14/03	18.3	15.3	16.9
09/15/01	19.2	16.1	17.6	09/15/02	17.0	15.4	16.2	09/15/03	18.3	15.5	16.8
09/16/01	19.0	16.1	17.6	09/16/02	17.3	14.6	15.9	09/16/03	17.4	15.0	16.3
09/17/01	19.2	15.8	17.5	09/17/02	17.0	14.9	16.0	09/17/03	17.0	14.5	15.7
09/18/01	19.2	16.1	17.6	09/18/02	17.3	14.6	15.9	09/18/03	16.6	13.6	15.0
09/19/01	19.2	16.1	17.7	09/19/02	17.3	14.6	15.9	09/19/03	16.7	13.6	15.0
09/20/01	19.0	16.1	17.6	09/20/02	17.4	14.7	16.1	09/20/03	17.2	13.9	15.5
09/21/01	18.4	15.5	17.1	09/21/02	17.8	15.1	16.5	09/21/03	17.5	14.3	15.9
09/22/01	17.9	15.2	16.7	09/22/02	17.9	15.2	16.6	09/22/03	17.8	14.7	16.1
09/23/01	17.2	15.0	16.3	09/23/02	17.8	15.1	16.5	09/23/03	17.8	15.0	16.4
09/24/01	16.6	14.6	15.6	09/24/02	17.8	15.1	16.4	09/24/03	18.2	15.1	16.6
09/25/01	17.2	15.3	16.2	09/25/02	17.4	14.9	16.2	09/25/03	18.0	15.3	16.7
09/26/01	16.9	14.2	15.6	09/26/02	17.1	14.6	15.9	09/26/03	18.0	15.1	16.5
09/27/01	16.8	14.4	15.5	09/27/02	16.6	14.6	15.7	09/27/03	18.2	15.5	16.7
09/28/01	16.5	13.9	15.1	09/28/02	16.3	14.1	15.2	09/28/03	17.7	15.1	16.5
09/29/01	16.6	13.5	15.0	09/29/02	16.2	14.3	15.2	09/29/03	17.5	15.0	16.2
09/30/01	16.8	13.8	15.2	09/30/02	15.7	13.6	14.7	09/30/03	16.9	14.2	15.5
10/01/01	17.2	14.2	15.6	10/01/02	14.3	12.3	13.4	10/01/03	16.9	14.3	15.5
10/02/01	17.6	14.7	16.1	10/02/02	13.5	11.3	12.5	10/02/03	16.7	14.2	15.4
10/03/01	17.6	14.9	16.2	10/03/02	12.9	11.0	12.0	10/03/03	16.2	14.2	15.3
10/04/01	17.2	14.7	16.0	10/04/02	13.8	11.5	12.6	10/04/03	17.0	14.7	15.7
10/05/01	16.5	14.6	15.5	10/05/02	14.3	11.9	13.1	10/05/03	16.9	14.7	15.7
10/06/01	15.8	13.6	14.7	10/06/02	15.1	12.7	13.8	10/06/03	16.9	14.3	15.5
10/07/01	15.5	13.3	14.4	10/07/02	15.4	13.0	14.2	10/07/03	16.7	14.3	15.5
10/08/01	16.0	13.6	14.6	10/08/02	15.2	13.2	14.2	10/08/03	15.5	14.2	14.7
10/09/01	14.7	12.7	13.9	10/09/02	15.2	13.0	14.1	10/09/03	nr	nr	nr
10/10/01	14.1	12.1	13.1	10/10/02	15.1	13.3	14.2	10/10/03	nr	nr	nr
10/11/01	14.2	12.4	13.2	10/11/02	14.4	12.4	13.5	10/11/03	nr	nr	nr
10/12/01	14.1	11.5	12.8	10/12/02	13.6	11.6	12.7	10/12/03	nr	nr	nr
10/13/01	14.1	11.5	12.8	10/13/02	13.5	11.3	12.4	10/13/03	nr	nr	nr
10/14/01	13.8	11.9	12.9	10/14/02	13.3	11.5	12.4	10/14/03	nr	nr	nr
10/15/01	13.9	11.8	12.9	10/15/02	13.2	11.2	12.2	10/15/03	nr	nr	nr
10/16/01	14.1	12.2	13.2	10/16/02	12.9	11.0	12.0	10/16/03	nr	nr	nr
10/17/01	14.2	12.4	13.3	10/17/02	12.7	10.9	11.8	10/17/03	nr	nr	nr
10/18/01	14.2	11.9	13.0	10/18/02	12.7	11.0	11.8	10/18/03	nr	nr	nr
10/19/01	13.6	11.6	12.7	10/19/02	12.9	10.9	11.9	10/19/03	nr	nr	nr
10/20/01	13.2	11.5	12.3	10/20/02	13.0	11.0	12.0	10/20/03	nr	nr	nr
10/21/01	13.2	11.2	12.1	10/21/02	12.7	10.9	11.8	10/21/03	nr	nr	nr
10/22/01	13.0	11.0	11.9	10/22/02	11.8	10.6	11.1	10/22/03	nr	nr	nr
10/23/01	13.2	11.2	12.0	10/23/02	12.1	10.3	11.2	10/23/03	nr	nr	nr
10/24/01	12.1	9.9	11.1	10/24/02	11.2	9.9	10.6	10/24/03	nr	nr	nr
10/25/01	12.1	10.1	11.0	10/25/02	11.8	9.9	10.6	10/25/03	nr	nr	nr
10/26/01	12.1	10.1	11.0	10/26/02	11.3	9.6	10.4	10/26/03	nr	nr	nr
10/27/01	11.8	10.2	11.0	10/27/02	11.2	9.5	10.3	10/27/03	nr	nr	nr
10/28/01	11.6	10.7	11.2	10/28/02	10.7	9.3	10.0	10/28/03	nr	nr	nr
10/29/01	11.8	10.8	11.3	10/29/02	10.6	8.7	9.5	10/29/03	nr	nr	nr
10/30/01	11.8	11.5	11.6	10/30/02	9.5	8.1	8.7	10/30/03	nr	nr	nr
10/31/01	12.5	11.2	11.7	10/31/02	8.9	7.3	7.9	10/31/03	nr	nr	nr

APPENDIX E, Table 3 (continued). Butte Creek water temperatures (Celsius) at Pool 4 for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
11/01/01	11.8	10.4	11.1	11/01/02	7.8	6.4	7.0	11/01/03	nr	nr	nr
11/02/01	11.6	9.9	10.8	11/02/02	7.3	5.8	6.4	11/02/03	nr	nr	nr
11/03/01	11.3	9.6	10.5	11/03/02	7.5	5.9	6.6	11/03/03	nr	nr	nr
11/04/01	11.5	9.8	10.5	11/04/02	7.5	5.9	6.5	11/04/03	nr	nr	nr
11/05/01	11.3	9.8	10.5	11/05/02	7.6	5.9	6.6	11/05/03	nr	nr	nr
11/06/01	11.0	9.8	10.3	11/06/02	7.8	6.2	6.9	11/06/03	nr	nr	nr
11/07/01	10.2	8.8	9.5	11/07/02	9.2	6.9	7.7	11/07/03	nr	nr	nr
11/08/01	10.1	8.5	9.2	11/08/02	9.5	8.6	9.1	11/08/03	nr	nr	nr
11/09/01	10.4	8.7	9.3	11/09/02	9.5	8.7	9.1	11/09/03	nr	nr	nr
11/10/01	10.1	8.8	9.4	11/10/02	8.7	8.6	8.7	11/10/03	nr	nr	nr
11/11/01	10.4	9.5	9.9	11/11/02	9.0	8.1	8.5	11/11/03	nr	nr	nr
11/12/01	10.7	10.2	10.4	11/12/02	9.0	8.1	8.5	11/12/03	nr	nr	nr
11/13/01	10.2	9.6	9.9	11/13/02	9.3	8.2	8.7	11/13/03	nr	nr	nr
11/14/01	10.4	9.5	9.7	11/14/02	9.2	7.9	8.5	11/14/03	nr	nr	nr
11/15/01	10.6	9.5	9.9	11/15/02	9.0	7.6	8.3	11/15/03	nr	nr	nr
11/16/01	10.4	9.8	10.1	11/16/02	8.6	7.5	8.0	11/16/03	nr	nr	nr
11/17/01	10.9	9.9	10.3	11/17/02	8.7	7.5	8.0	11/17/03	nr	nr	nr
11/18/01	9.9	9.0	9.6	11/18/02	8.2	7.2	7.6	11/18/03	nr	nr	nr
11/19/01	9.9	9.2	9.6	11/19/02	7.9	6.7	7.3	11/19/03	nr	nr	nr
11/20/01	10.1	9.6	9.9	11/20/02	8.6	7.3	7.9	11/20/03	nr	nr	nr
11/21/01	10.6	10.1	10.2	11/21/02	9.3	8.1	8.6	11/21/03	nr	nr	nr
11/22/01	10.4	9.3	10.1	11/22/02	9.5	8.6	9.0	11/22/03	nr	nr	nr
11/23/01	9.2	8.2	8.6	11/23/02	9.3	8.4	8.8	11/23/03	nr	nr	nr
11/24/01	9.5	7.9	8.5	11/24/02	9.0	8.2	8.6	11/24/03	nr	nr	nr
11/25/01	7.8	7.0	7.5	11/25/02	8.2	7.2	7.6	11/25/03	nr	nr	nr
11/26/01	7.0	5.9	6.6	11/26/02	7.9	6.7	7.2	11/26/03	nr	nr	nr
11/27/01	6.2	5.1	5.7	11/27/02	7.9	6.4	7.1	11/27/03	nr	nr	nr
11/28/01	6.1	5.4	5.8	11/28/02	7.8	6.5	7.1	11/28/03	nr	nr	nr
11/29/01	5.7	5.0	5.5	11/29/02	7.5	6.5	6.9	11/29/03	nr	nr	nr
11/30/01	5.4	4.8	5.1	11/30/02	7.2	6.2	6.6	11/30/03	nr	nr	nr
12/01/01	7.3	5.3	6.4	12/01/02	7.0	6.1	6.5	12/01/03	nr	nr	nr
12/02/01	7.9	7.1	7.6	12/02/02	7.0	6.1	6.4	12/02/03	nr	nr	nr
12/03/01	7.5	6.1	7.1	12/03/02	6.9	5.9	6.3	12/03/03	nr	nr	nr
12/04/01	6.2	5.4	5.8	12/04/02	7.3	6.2	6.6	12/04/03	nr	nr	nr
12/05/01	6.1	5.4	5.8	12/05/02	7.2	6.4	6.8	12/05/03	nr	nr	nr
12/06/01	7.5	5.9	6.9	12/06/02	7.5	6.7	7.0	12/06/03	nr	nr	nr
12/07/01	7.1	6.2	6.7	12/07/02	7.3	6.5	6.9	12/07/03	nr	nr	nr
12/08/01	6.7	6.1	6.4	12/08/02	6.9	6.2	6.6	12/08/03	nr	nr	nr
12/09/01	6.8	5.7	6.4	12/09/02	6.9	6.2	6.5	12/09/03	nr	nr	nr
12/10/01	5.6	5.0	5.4	12/10/02	7.3	6.9	7.0	12/10/03	nr	nr	nr
12/11/01	5.1	4.3	4.8	12/11/02	7.5	6.5	7.0	12/11/03	nr	nr	nr
12/12/01	5.3	4.2	4.8	12/12/02	7.2	6.4	6.8	12/12/03	nr	nr	nr
12/13/01	5.7	5.0	5.4	12/13/02	9.0	7.0	7.6	12/13/03	nr	nr	nr
12/14/01	6.1	4.3	5.4	12/14/02	9.9	8.6	9.5	12/14/03	nr	nr	nr
12/15/01	4.5	3.7	4.1	12/15/02	8.9	8.1	8.2	12/15/03	nr	nr	nr
12/16/01	5.1	4.3	4.8	12/16/02	9.0	8.7	8.9	12/16/03	nr	nr	nr
12/17/01	6.8	5.3	6.2	12/17/02	8.6	7.6	8.0	12/17/03	nr	nr	nr
12/18/01	7.0	6.7	6.8	12/18/02	7.5	7.2	7.3	12/18/03	nr	nr	nr
12/19/01	7.1	6.8	7.0	12/19/02	7.0	6.1	6.5	12/19/03	nr	nr	nr
12/20/01	7.1	6.2	6.7	12/20/02	5.9	5.6	5.8	12/20/03	nr	nr	nr
12/21/01	6.7	6.1	6.4	12/21/02	7.5	5.9	6.8	12/21/03	nr	nr	nr
12/22/01	6.8	6.5	6.7	12/22/02	7.2	6.2	6.6	12/22/03	nr	nr	nr
12/23/01	6.7	6.1	6.4	12/23/02	6.1	5.4	5.7	12/23/03	nr	nr	nr
12/24/01	6.2	5.4	5.8	12/24/02	5.6	5.3	5.4	12/24/03	nr	nr	nr
12/25/01	6.5	5.7	6.0	12/25/02	5.6	5.3	5.5	12/25/03	nr	nr	nr
12/26/01	7.3	6.5	6.9	12/26/02	5.9	5.6	5.7	12/26/03	nr	nr	nr
12/27/01	7.3	7.1	7.2	12/27/02	8.2	6.1	7.2	12/27/03	nr	nr	nr
12/28/01	7.6	7.0	7.2	12/28/02	8.4	7.2	8.1	12/28/03	nr	nr	nr
12/29/01	7.9	7.5	7.7	12/29/02	7.9	7.5	7.7	12/29/03	nr	nr	nr
12/30/01	9.0	7.9	8.2	12/30/02	7.9	7.5	7.7	12/30/03	nr	nr	nr
12/31/01	9.2	8.7	8.9	12/31/02	7.5	7.3	7.4	12/31/03	nr	nr	nr

APPENDIX E, Table 4. Butte Creek water temperatures (Celsius) at Estates Pool for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
05/01/01	nr	nr	nr	05/01/02	10.7	9.5	10.0	05/01/03	10.1	9.8	9.9
05/02/01	nr	nr	nr	05/02/02	11.9	9.3	10.5	05/02/03	10.2	10.1	10.2
05/03/01	nr	nr	nr	05/03/02	12.9	10.4	11.5	05/03/03	10.2	10.1	10.1
05/04/01	nr	nr	nr	05/04/02	13.5	11.0	12.1	05/04/03	10.5	10.2	10.4
05/05/01	nr	nr	nr	05/05/02	13.0	11.6	12.3	05/05/03	10.4	10.1	10.2
05/06/01	nr	nr	nr	05/06/02	13.2	11.5	12.3	05/06/03	10.2	10.1	10.2
05/07/01	nr	nr	nr	05/07/02	12.9	11.6	12.3	05/07/03	10.2	9.9	10.0
05/08/01	nr	nr	nr	05/08/02	12.4	11.3	11.9	05/08/03	10.2	9.6	9.9
05/09/01	nr	nr	nr	05/09/02	12.6	11.2	11.9	05/09/03	9.6	9.0	9.2
05/10/01	nr	nr	nr	05/10/02	12.2	11.5	11.9	05/10/03	9.8	9.3	9.4
05/11/01	nr	nr	nr	05/11/02	12.7	10.6	11.6	05/11/03	10.1	9.8	9.9
05/12/01	nr	nr	nr	05/12/02	13.5	11.2	12.3	05/12/03	10.7	10.2	10.4
05/13/01	nr	nr	nr	05/13/02	14.4	12.2	13.1	05/13/03	11.3	10.9	10.9
05/14/01	nr	nr	nr	05/14/02	14.1	12.2	13.2	05/14/03	11.8	11.3	11.5
05/15/01	nr	nr	nr	05/15/02	14.3	12.4	13.3	05/15/03	11.9	11.8	11.8
05/16/01	nr	nr	nr	05/16/02	15.5	12.7	13.8	05/16/03	11.9	11.6	11.8
05/17/01	nr	nr	nr	05/17/02	15.5	13.6	14.6	05/17/03	11.8	11.3	11.5
05/18/01	nr	nr	nr	05/18/02	15.2	13.5	14.2	05/18/03	11.5	11.0	11.3
05/19/01	nr	nr	nr	05/19/02	13.8	11.8	12.8	05/19/03	11.6	11.2	11.3
05/20/01	nr	nr	nr	05/20/02	11.6	10.1	10.8	05/20/03	12.1	11.6	11.7
05/21/01	nr	nr	nr	05/21/02	10.4	9.3	9.8	05/21/03	12.7	12.1	12.2
05/22/01	nr	nr	nr	05/22/02	11.3	9.5	10.2	05/22/03	13.5	12.7	12.9
05/23/01	nr	nr	nr	05/23/02	12.1	10.1	10.9	05/23/03	13.8	13.5	13.6
05/24/01	nr	nr	nr	05/24/02	13.0	11.0	11.8	05/24/03	13.8	13.5	13.6
05/25/01	nr	nr	nr	05/25/02	14.1	11.9	12.8	05/25/03	13.6	13.2	13.4
05/26/01	nr	nr	nr	05/26/02	14.7	12.7	13.6	05/26/03	13.5	12.9	13.1
05/27/01	nr	nr	nr	05/27/02	14.4	13.3	13.9	05/27/03	13.5	12.7	13.0
05/28/01	nr	nr	nr	05/28/02	15.4	13.2	14.2	05/28/03	14.3	13.5	13.7
05/29/01	nr	nr	nr	05/29/02	16.8	13.9	15.1	05/29/03	14.4	14.0	14.1
05/30/01	nr	nr	nr	05/30/02	18.2	15.4	16.5	05/30/03	14.0	13.0	13.4
05/31/01	nr	nr	nr	05/31/02	19.0	16.5	17.5	05/31/03	14.1	13.3	13.6
06/01/01	nr	nr	nr	06/01/02	18.5	16.6	17.5	06/01/03	14.4	13.6	14.0
06/02/01	nr	nr	nr	06/02/02	17.9	15.8	16.8	06/02/03	14.7	13.8	14.2
06/03/01	nr	nr	nr	06/03/02	17.9	15.5	16.5	06/03/03	15.4	14.3	14.6
06/04/01	nr	nr	nr	06/04/02	18.1	15.2	16.4	06/04/03	15.8	14.7	15.2
06/05/01	nr	nr	nr	06/05/02	19.0	16.0	17.2	06/05/03	16.3	15.0	15.6
06/06/01	nr	nr	nr	06/06/02	18.7	16.6	17.5	06/06/03	16.6	15.5	15.9
06/07/01	nr	nr	nr	06/07/02	18.2	16.5	17.4	06/07/03	16.9	15.7	16.2
06/08/01	nr	nr	nr	06/08/02	17.6	16.0	16.8	06/08/03	17.6	16.2	16.7
06/09/01	nr	nr	nr	06/09/02	16.1	14.4	15.3	06/09/03	17.6	16.5	17.0
06/10/01	nr	nr	nr	06/10/02	16.1	14.1	15.1	06/10/03	17.6	16.0	16.7
06/11/01	nr	nr	nr	06/11/02	16.9	14.7	15.7	06/11/03	16.8	15.4	16.0
06/12/01	nr	nr	nr	06/12/02	17.4	15.4	16.3	06/12/03	16.5	15.2	15.9
06/13/01	nr	nr	nr	06/13/02	17.7	15.8	16.7	06/13/03	16.5	15.4	15.9
06/14/01	nr	nr	nr	06/14/02	18.1	16.3	17.1	06/14/03	16.5	15.2	15.9
06/15/01	nr	nr	nr	06/15/02	18.2	16.3	17.3	06/15/03	16.8	15.2	15.9
06/16/01	nr	nr	nr	06/16/02	18.5	16.3	17.3	06/16/03	17.4	15.8	16.4
06/17/01	nr	nr	nr	06/17/02	18.4	16.0	17.2	06/17/03	20.0	16.8	17.9
06/18/01	nr	nr	nr	06/18/02	19.4	16.6	17.8	06/18/03	19.5	17.1	18.1
06/19/01	nr	nr	nr	06/19/02	19.2	16.9	17.9	06/19/03	19.2	16.3	17.5
06/20/01	nr	nr	nr	06/20/02	19.4	17.1	18.1	06/20/03	19.0	16.0	17.4
06/21/01	nr	nr	nr	06/21/02	19.4	17.3	18.3	06/21/03	18.4	15.2	16.5
06/22/01	nr	nr	nr	06/22/02	19.5	17.1	18.2	06/22/03	17.9	14.9	16.1
06/23/01	nr	nr	nr	06/23/02	20.0	17.6	18.6	06/23/03	17.4	14.3	15.5
06/24/01	Thermograph first installed			06/24/02	20.2	17.7	18.8	06/24/03	17.1	13.6	15.1
06/25/01	18.3	16.1	17.0	06/25/02	20.5	17.9	19.0	06/25/03	17.9	14.0	15.7
06/26/01	16.4	15.3	15.8	06/26/02	21.0	18.5	19.5	06/26/03	18.9	15.0	16.7
06/27/01	15.5	14.5	15.0	06/27/02	20.8	18.4	19.5	06/27/03	19.8	16.0	17.7
06/28/01	18.0	13.7	15.5	06/28/02	21.0	18.7	19.7	06/28/03	20.7	16.9	18.4
06/29/01	19.6	15.3	17.1	06/29/02	21.5	18.9	20.1	06/29/03	20.3	17.1	18.3
06/30/01	20.4	16.4	18.1	06/30/02	22.3	19.2	20.4	06/30/03	19.8	16.5	17.8

APPENDIX E, Table 4 (continued). Butte Creek water temperatures (Celsius) at Estates Pool for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
07/01/01	21.4	17.1	18.9	07/01/02	21.8	18.9	20.2	07/01/03	19.2	15.7	17.1
07/02/01	21.9	17.5	19.4	07/02/02	22.0	19.2	20.4	07/02/03	18.9	15.5	16.8
07/03/01	21.6	18.3	19.7	07/03/02	21.6	18.7	20.1	07/03/03	18.9	15.2	16.7
07/04/01	21.6	18.8	20.0	07/04/02	21.8	18.7	20.0	07/04/03	19.4	15.5	17.1
07/05/01	22.9	19.1	20.6	07/05/02	21.8	18.7	20.0	07/05/03	20.0	16.2	17.7
07/06/01	22.3	19.0	20.4	07/06/02	22.0	18.9	20.3	07/06/03	20.3	16.5	18.1
07/07/01	21.8	18.7	19.8	07/07/02	22.0	19.2	20.3	07/07/03	20.5	16.9	18.4
07/08/01	22.3	18.2	19.8	07/08/02	22.0	18.7	20.2	07/08/03	19.7	16.5	17.9
07/09/01	22.4	18.5	20.2	07/09/02	22.1	19.0	20.4	07/09/03	20.0	16.3	18.0
07/10/01	22.9	19.1	20.6	07/10/02	23.0	19.5	21.1	07/10/03	20.3	16.8	18.4
07/11/01	22.8	19.3	20.7	07/11/02	23.1	20.2	21.5	07/11/03	20.7	17.1	18.8
07/12/01	22.3	18.5	20.1	07/12/02	23.3	21.3	22.1	07/12/03	20.8	17.4	19.0
07/13/01	22.4	18.3	20.0	07/13/02	23.8	21.0	22.2	07/13/03	21.0	17.6	19.1
07/14/01	21.9	18.0	19.7	07/14/02	24.0	21.0	22.3	07/14/03	20.7	17.3	18.8
07/15/01	21.1	17.5	19.1	07/15/02	22.8	20.5	21.7	07/15/03	20.5	17.4	18.9
07/16/01	20.4	17.2	18.6	07/16/02	22.1	19.4	20.8	07/16/03	20.5	17.6	18.9
07/17/01	20.3	16.7	18.2	07/17/02	21.8	18.9	20.3	07/17/03	20.3	17.6	18.9
07/18/01	20.3	16.6	18.1	07/18/02	21.3	19.0	20.2	07/18/03	21.0	17.7	19.2
07/19/01	20.4	16.9	18.4	07/19/02	23.6	19.4	20.9	07/19/03	21.3	18.4	19.7
07/20/01	20.3	16.6	18.2	07/20/02	23.8	19.5	21.2	07/20/03	22.0	19.0	20.2
07/21/01	20.1	16.4	18.0	07/21/02	23.3	20.0	21.4	07/21/03	23.3	19.8	21.2
07/22/01	20.1	16.1	17.9	07/22/02	23.8	20.0	21.5	07/22/03	23.7	20.3	21.9
07/23/01	20.9	16.9	18.6	07/23/02	23.5	19.2	21.0	07/23/03	23.8	21.0	22.3
07/24/01	21.8	17.7	19.5	07/24/02	23.1	18.7	20.6	07/24/03	23.8	21.0	22.1
07/25/01	22.4	18.5	20.1	07/25/02	23.0	18.4	20.2	07/25/03	23.2	20.5	21.7
07/26/01	22.8	19.1	20.6	07/26/02	22.8	18.2	20.1	07/26/03	23.2	19.8	21.3
07/27/01	22.4	18.7	20.3	07/27/02	23.1	18.9	20.7	07/27/03	23.2	19.5	21.1
07/28/01	21.8	18.0	19.6	07/28/02	23.6	19.4	21.2	07/28/03	23.3	19.7	21.3
07/29/01	21.4	17.9	19.4	07/29/02	23.6	19.5	21.3	07/29/03	23.8	20.2	21.9
07/30/01	21.3	17.9	19.2	07/30/02	23.6	20.0	21.5	07/30/03	23.5	20.8	22.0
07/31/01	21.3	17.7	19.2	07/31/02	23.8	20.3	21.7	07/31/03	23.0	20.5	21.5
08/01/01	21.6	17.7	19.3	08/01/02	23.6	19.7	21.3	08/01/03	21.3	20.0	20.7
08/02/01	21.6	17.7	19.3	08/02/02	21.0	19.5	20.1	08/02/03	20.3	19.0	19.9
08/03/01	21.3	17.4	19.0	08/03/02	23.0	19.4	20.8	08/03/03	21.3	18.2	19.5
08/04/01	21.1	17.5	18.9	08/04/02	21.2	18.6	19.7	08/04/03	21.3	18.2	19.5
08/05/01	21.3	17.5	19.0	08/05/02	20.8	17.3	18.8	08/05/03	21.0	18.1	19.2
08/06/01	21.8	17.7	19.3	08/06/02	20.2	16.5	18.1	08/06/03	20.3	17.4	18.6
08/07/01	22.1	18.0	19.8	08/07/02	20.0	16.0	17.7	08/07/03	19.8	16.6	18.0
08/08/01	22.9	19.0	20.6	08/08/02	20.2	16.0	17.8	08/08/03	19.7	16.3	17.7
08/09/01	23.3	19.5	21.1	08/09/02	21.0	16.5	18.5	08/09/03	19.7	16.3	17.7
08/10/01	22.9	19.0	20.8	08/10/02	21.7	17.4	19.2	08/10/03	19.8	16.3	17.8
08/11/01	22.4	18.3	20.2	08/11/02	22.2	17.9	19.8	08/11/03	19.5	16.3	17.6
08/12/01	22.1	18.3	20.0	08/12/02	22.5	18.4	20.1	08/12/03	19.2	15.8	17.2
08/13/01	21.8	17.7	19.5	08/13/02	23.2	19.2	20.8	08/13/03	19.0	15.5	17.0
08/14/01	21.6	17.5	19.3	08/14/02	23.2	19.7	21.2	08/14/03	19.2	15.8	17.2
08/15/01	21.4	17.2	19.1	08/15/02	23.3	19.8	21.3	08/15/03	17.4	15.8	16.4
08/16/01	21.3	17.1	18.9	08/16/02	23.3	20.0	21.5	08/16/03	19.0	15.5	17.1
08/17/01	20.3	16.9	18.6	08/17/02	22.7	19.7	21.0	08/17/03	19.2	15.7	17.2
08/18/01	20.9	17.1	18.7	08/18/02	22.5	19.0	20.6	08/18/03	19.8	16.2	17.7
08/19/01	20.9	17.1	18.8	08/19/02	21.7	18.6	20.0	08/19/03	20.3	16.8	18.2
08/20/01	20.4	16.9	18.5	08/20/02	21.0	17.7	19.2	08/20/03	20.2	16.8	18.3
08/21/01	20.1	16.4	18.1	08/21/02	20.3	17.1	18.5	08/21/03	18.9	17.4	18.1
08/22/01	19.9	16.4	18.0	08/22/02	20.0	16.6	18.1	08/22/03	18.2	16.8	17.5
08/23/01	19.5	16.4	17.9	08/23/02	19.7	16.2	17.7	08/23/03	19.0	16.0	17.2
08/24/01	20.4	16.7	18.3	08/24/02	19.5	15.8	17.5	08/24/03	19.4	16.3	17.6
08/25/01	20.6	16.7	18.5	08/25/02	19.5	16.0	17.6	08/25/03	19.5	16.5	17.8
08/26/01	21.1	17.1	18.7	08/26/02	20.0	16.6	18.0	08/26/03	19.7	17.1	18.1
08/27/01	21.3	17.4	19.1	08/27/02	20.5	16.8	18.3	08/27/03	20.0	17.1	18.3
08/28/01	21.6	17.7	19.3	08/28/02	21.0	17.4	18.9	08/28/03	19.5	16.5	17.8
08/29/01	21.6	18.0	19.5	08/29/02	21.0	17.7	19.1	08/29/03	19.0	15.8	17.2
08/30/01	21.4	17.9	19.4	08/30/02	21.0	17.6	19.1	08/30/03	19.0	16.2	17.4
08/31/01	21.3	17.9	19.2	08/31/02	20.7	17.4	18.9	08/31/03	19.4	16.6	17.8

APPENDIX E, Table 4 (continued). Butte Creek water temperatures (Celsius) at Estates Pool for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
09/01/01	21.1	17.7	19.1	09/01/02	20.8	17.4	18.9	09/01/03	20.0	16.9	18.2
09/02/01	20.9	17.5	18.9	09/02/02	21.0	17.7	19.1	09/02/03	20.5	17.4	18.6
09/03/01	20.9	17.2	18.7	09/03/02	20.5	17.4	18.8	09/03/03	19.2	17.7	18.4
09/04/01	20.8	17.4	18.8	09/04/02	20.0	17.1	18.3	09/04/03	20.2	17.4	18.6
09/05/01	19.9	16.6	18.1	09/05/02	19.0	16.2	17.3	09/05/03	20.8	17.9	19.1
09/06/01	19.5	16.1	17.6	09/06/02	18.1	15.2	16.4	09/06/03	20.0	17.4	18.5
09/07/01	19.1	15.5	17.2	09/07/02	17.3	14.1	15.5	09/07/03	17.7	16.5	17.1
09/08/01	19.3	15.6	17.2	09/08/02	16.9	13.6	15.1	09/08/03	17.6	15.7	16.5
09/09/01	18.8	15.8	17.1	09/09/02	17.1	13.6	15.2	09/09/03	16.5	15.4	15.8
09/10/01	18.8	15.8	17.1	09/10/02	17.6	14.3	15.7	09/10/03	16.5	14.1	14.8
09/11/01	16.9	15.8	16.3	09/11/02	18.1	14.7	16.1	09/11/03	Data Download Error		
09/12/01	18.0	15.0	16.3	09/12/02	18.4	15.0	16.5	09/12/03	nr	nr	nr
09/13/01	18.7	15.5	16.8	09/13/02	18.6	15.4	16.7	09/13/03	nr	nr	nr
09/14/01	19.3	15.9	17.3	09/14/02	18.1	15.4	16.6	09/14/03	nr	nr	nr
09/15/01	19.3	16.3	17.5	09/15/02	17.3	15.7	16.4	09/15/03	nr	nr	nr
09/16/01	19.0	16.3	17.5	09/16/02	17.7	14.7	16.1	09/16/03	nr	nr	nr
09/17/01	19.3	15.9	17.4	09/17/02	17.9	14.9	16.3	09/17/03	nr	nr	nr
09/18/01	19.3	16.3	17.6	09/18/02	18.2	15.0	16.5	09/18/03	nr	nr	nr
09/19/01	19.3	16.4	17.7	09/19/02	18.4	15.0	16.6	09/19/03	nr	nr	nr
09/20/01	19.3	16.3	17.6	09/20/02	18.7	15.2	16.9	09/20/03	nr	nr	nr
09/21/01	19.1	15.6	17.2	09/21/02	19.0	15.7	17.2	09/21/03	nr	nr	nr
09/22/01	18.5	15.5	16.9	09/22/02	19.0	15.7	17.3	09/22/03	nr	nr	nr
09/23/01	18.0	15.3	16.6	09/23/02	19.0	15.7	17.3	09/23/03	nr	nr	nr
09/24/01	17.1	14.7	15.9	09/24/02	18.9	15.7	17.2	09/24/03	nr	nr	nr
09/25/01	17.1	15.5	16.0	09/25/02	18.6	15.4	16.9	09/25/03	nr	nr	nr
09/26/01	17.2	14.2	15.5	09/26/02	18.1	15.0	16.6	09/26/03	nr	nr	nr
09/27/01	17.1	14.5	15.6	09/27/02	17.6	15.0	16.3	09/27/03	nr	nr	nr
09/28/01	16.7	13.9	15.2	09/28/02	17.1	14.4	15.7	09/28/03	nr	nr	nr
09/29/01	16.9	13.6	15.1	09/29/02	16.9	14.9	15.8	09/29/03	nr	nr	nr
09/30/01	17.4	13.9	15.5	09/30/02	16.6	14.0	15.2	09/30/03	nr	nr	nr
10/01/01	17.9	14.5	16.0	10/01/02	15.0	12.4	13.7	10/01/03	nr	nr	nr
10/02/01	18.2	15.0	16.5	10/02/02	14.1	11.5	12.8	10/02/03	nr	nr	nr
10/03/01	18.2	15.2	16.5	10/03/02	13.6	11.2	12.5	10/03/03	16.5	15.6	16.1
10/04/01	17.7	15.0	16.3	10/04/02	14.7	11.6	13.1	10/04/03	17.3	14.8	15.9
10/05/01	16.9	14.5	15.7	10/05/02	15.2	12.4	13.8	10/05/03	17.1	14.6	15.8
10/06/01	16.1	13.6	14.8	10/06/02	16.2	13.0	14.5	10/06/03	17.1	14.4	15.6
10/07/01	15.8	13.3	14.5	10/07/02	16.5	13.5	14.9	10/07/03	17.0	14.4	15.6
10/08/01	16.1	13.7	14.7	10/08/02	16.3	13.5	14.8	10/08/03	16.8	14.3	15.5
10/09/01	15.2	12.8	14.0	10/09/02	16.0	13.5	14.7	10/09/03	15.9	13.7	14.6
10/10/01	14.5	12.1	13.2	10/10/02	16.2	14.0	14.8	10/10/03	14.4	12.1	13.3
10/11/01	14.5	12.5	13.4	10/11/02	15.4	12.4	13.9	10/11/03	14.0	11.3	12.6
10/12/01	14.4	11.6	13.0	10/12/02	14.7	11.8	13.2	10/12/03	13.8	11.3	12.5
10/13/01	14.7	11.7	13.1	10/13/02	14.6	11.5	12.9	10/13/03	13.4	10.6	12.0
10/14/01	14.2	12.2	13.1	10/14/02	14.4	11.5	12.8	10/14/03	13.4	10.9	11.9
10/15/01	14.4	11.9	13.1	10/15/02	14.1	11.3	12.7	10/15/03	12.7	10.7	11.7
10/16/01	14.5	12.4	13.4	10/16/02	13.8	11.0	12.4	10/16/03	13.2	10.6	11.8
10/17/01	14.7	12.5	13.5	10/17/02	13.6	10.9	12.2	10/17/03	13.4	10.9	12.0
10/18/01	14.5	11.9	13.1	10/18/02	13.3	11.0	12.1	10/18/03	13.2	11.0	12.0
10/19/01	13.9	11.6	12.8	10/19/02	13.8	11.0	12.3	10/19/03	13.5	11.2	12.3
10/20/01	13.6	11.4	12.5	10/20/02	13.8	11.3	12.4	10/20/03	14.1	11.8	12.9
10/21/01	13.3	11.0	12.2	10/21/02	13.6	11.0	12.2	10/21/03	14.8	12.1	13.3
10/22/01	13.1	11.0	12.0	10/22/02	13.3	10.7	11.9	10/22/03	14.3	12.1	13.2
10/23/01	13.1	11.1	12.0	10/23/02	12.7	10.4	11.5	10/23/03	14.3	12.0	13.0
10/24/01	12.2	9.9	11.1	10/24/02	11.8	10.2	11.0	10/24/03	13.5	11.3	12.4
10/25/01	12.2	9.9	11.0	10/25/02	12.6	10.4	11.3	10/25/03	13.8	11.5	12.6
10/26/01	12.2	9.9	11.0	10/26/02	12.1	9.9	11.1	10/26/03	14.3	12.1	13.0
10/27/01	11.9	10.2	11.0	10/27/02	12.1	9.8	11.0	10/27/03	14.3	12.0	13.1
10/28/01	11.7	10.8	11.2	10/28/02	11.9	9.8	10.7	10/28/03	14.6	12.3	13.3
10/29/01	11.9	11.0	11.4	10/29/02	10.2	9.0	9.5	10/29/03	14.4	12.3	13.2
10/30/01	11.7	11.4	11.5	10/30/02	10.7	8.4	9.5	10/30/03	12.3	10.4	11.3
10/31/01	12.1	10.8	11.3	10/31/02	9.9	7.6	8.7	10/31/03	10.7	9.2	10.0

APPENDIX E, Table 4 (continued). Butte Creek water temperatures (Celsius) at Estates Pool for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
11/01/01	11.7	10.0	10.8	11/01/02	9.0	6.8	7.9	11/01/03	9.6	7.8	8.6
11/02/01	11.4	9.6	10.4	11/02/02	8.5	6.2	7.3	11/02/03	8.4	7.3	7.8
11/03/01	11.3	9.4	10.3	11/03/02	8.7	6.2	7.2	11/03/03	7.8	6.5	7.3
11/04/01	11.4	9.6	10.4	11/04/02	8.5	6.1	7.2	11/04/03	7.5	5.8	6.6
11/05/01	11.6	9.4	10.4	11/05/02	8.7	6.1	7.2	11/05/03	8.4	6.7	7.3
11/06/01	11.1	9.6	10.3	11/06/02	8.5	6.4	7.4	11/06/03	7.9	6.5	7.3
11/07/01	10.5	8.6	9.5	11/07/02	8.8	7.8	8.1	11/07/03	8.6	7.5	7.9
11/08/01	10.2	8.2	9.2	11/08/02	9.9	9.0	9.5	11/08/03	9.5	8.1	8.8
11/09/01	16.2	8.5	9.6	11/09/02	9.8	9.3	9.5	11/09/03	9.6	8.9	9.3
11/10/01	10.3	8.9	9.6	11/10/02	9.5	9.0	9.1	11/10/03	9.5	8.1	8.7
11/11/01	10.9	9.7	10.3	11/11/02	9.6	8.7	9.1	11/11/03	8.9	7.3	8.0
11/12/01	11.6	10.5	11.0	11/12/02	9.5	8.7	9.1	11/12/03	9.0	7.3	7.9
11/13/01	10.9	10.2	10.6	11/13/02	9.8	8.8	9.3	11/13/03	8.4	7.3	7.8
11/14/01	11.1	10.0	10.4	11/14/02	9.5	8.5	9.1	11/14/03	7.8	7.6	7.7
11/15/01	11.1	10.0	10.3	11/15/02	9.0	7.9	8.5	11/15/03	nr	nr	nr
11/16/01	10.2	9.5	9.9	11/16/02	8.4	7.6	8.0	11/16/03	nr	nr	nr
11/17/01	10.5	9.7	10.0	11/17/02	8.4	7.6	8.0	11/17/03	nr	nr	nr
11/18/01	9.9	8.9	9.4	11/18/02	8.4	7.5	7.9	11/18/03	nr	nr	nr
11/19/01	9.7	8.9	9.4	11/19/02	8.4	7.3	7.9	11/19/03	nr	nr	nr
11/20/01	10.0	9.5	9.7	11/20/02	8.8	7.9	8.3	11/20/03	nr	nr	nr
11/21/01	10.9	10.0	10.2	11/21/02	9.3	8.5	8.8	11/21/03	nr	nr	nr
11/22/01	10.9	9.9	10.6	11/22/02	9.6	8.8	9.2	11/22/03	nr	nr	nr
11/23/01	9.7	8.8	9.2	11/23/02	9.6	9.0	9.3	11/23/03	nr	nr	nr
11/24/01	10.5	8.5	9.4	11/24/02	9.5	9.0	9.2	11/24/03	nr	nr	nr
11/25/01	8.9	8.0	8.5	11/25/02	9.3	8.2	8.7	11/25/03	nr	nr	nr
11/26/01	8.0	6.9	7.6	11/26/02	8.5	7.5	7.9	11/26/03	nr	nr	nr
11/27/01	6.8	6.0	6.4	11/27/02	8.2	7.1	7.7	11/27/03	nr	nr	nr
11/28/01	6.5	6.3	6.4	11/28/02	8.2	7.3	7.8	11/28/03	nr	nr	nr
11/29/01	7.2	6.6	7.0	11/29/02	7.9	7.0	7.5	11/29/03	nr	nr	nr
11/30/01	6.6	6.3	6.5	11/30/02	7.6	6.8	7.2	11/30/03	nr	nr	nr
12/01/01	9.1	6.6	8.0	12/01/02	7.3	6.7	7.0	12/01/03	nr	nr	nr
12/02/01	9.2	8.6	9.0	12/02/02	7.3	6.7	7.0	12/02/03	nr	nr	nr
12/03/01	8.9	8.2	8.6	12/03/02	7.1	6.4	6.8	12/03/03	nr	nr	nr
12/04/01	8.0	7.2	7.5	12/04/02	7.6	6.7	7.1	12/04/03	nr	nr	nr
12/05/01	7.5	6.6	7.2	12/05/02	7.6	6.8	7.2	12/05/03	nr	nr	nr
12/06/01	8.2	6.8	7.7	12/06/02	7.8	7.0	7.4	12/06/03	nr	nr	nr
12/07/01	8.0	7.4	7.7	12/07/02	7.6	6.7	7.3	12/07/03	nr	nr	nr
12/08/01	7.5	7.1	7.4	12/08/02	7.3	6.5	7.0	12/08/03	nr	nr	nr
12/09/01	7.7	7.4	7.5	12/09/02	7.1	6.5	6.8	12/09/03	nr	nr	nr
12/10/01	7.1	6.6	6.8	12/10/02	7.6	7.1	7.3	12/10/03	nr	nr	nr
12/11/01	6.5	5.8	6.2	12/11/02	7.8	7.0	7.4	12/11/03	nr	nr	nr
12/12/01	6.2	5.4	5.8	12/12/02	7.5	6.7	7.1	12/12/03	nr	nr	nr
12/13/01	6.6	5.8	6.1	12/13/02	8.8	7.5	7.7	12/13/03	nr	nr	nr
12/14/01	6.9	6.2	6.6	12/14/02	10.4	9.0	9.9	12/14/03	nr	nr	nr
12/15/01	5.8	5.4	5.6	12/15/02	9.2	8.5	8.7	12/15/03	nr	nr	nr
12/16/01	6.2	5.5	5.8	12/16/02	9.6	9.0	9.3	12/16/03	nr	nr	nr
12/17/01	7.4	6.2	7.0	12/17/02	9.0	7.6	8.3	12/17/03	nr	nr	nr
12/18/01	7.5	7.2	7.4	12/18/02	7.6	6.8	7.2	12/18/03	nr	nr	nr
12/19/01	7.9	7.5	7.7	12/19/02	6.8	6.1	6.3	12/19/03	nr	nr	nr
12/20/01	7.9	7.5	7.8	12/20/02	6.8	5.4	6.1	12/20/03	nr	nr	nr
12/21/01	7.5	7.2	7.4	12/21/02	8.7	6.2	8.0	12/21/03	nr	nr	nr
12/22/01	7.9	7.4	7.6	12/22/02	7.5	6.2	6.7	12/22/03	nr	nr	nr
12/23/01	7.5	6.9	7.3	12/23/02	6.4	5.4	5.9	12/23/03	nr	nr	nr
12/24/01	6.9	6.3	6.6	12/24/02	7.6	6.2	6.7	12/24/03	nr	nr	nr
12/25/01	6.8	6.3	6.6	12/25/02	8.1	7.6	7.9	12/25/03	nr	nr	nr
12/26/01	7.7	6.9	7.3	12/26/02	7.9	7.8	7.9	12/26/03	nr	nr	nr
12/27/01	7.9	7.5	7.7	12/27/02	8.5	7.8	8.1	12/27/03	nr	nr	nr
12/28/01	8.2	7.5	7.7	12/28/02	8.8	7.6	8.6	12/28/03	nr	nr	nr
12/29/01	8.6	8.2	8.4	12/29/02	9.3	7.6	8.3	12/29/03	nr	nr	nr
12/30/01	9.7	8.5	8.8	12/30/02	9.6	9.5	9.5	12/30/03	nr	nr	nr
12/31/01	10.0	9.7	9.8	12/31/02	9.9	9.6	9.8	12/31/03	nr	nr	nr

APPENDIX E, Table 5. Butte Creek water temperatures (Celsius) at Cable Bridge for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
05/01/01	nr	nr	nr	05/01/02	11.5	8.5	9.8	05/01/03	nr	nr	nr
05/02/01	nr	nr	nr	05/02/02	13.5	8.7	10.8	05/02/03	nr	nr	nr
05/03/01	nr	nr	nr	05/03/02	14.6	10.4	12.1	05/03/03	nr	nr	nr
05/04/01	nr	nr	nr	05/04/02	15.5	10.9	13.0	05/04/03	nr	nr	nr
05/05/01	nr	nr	nr	05/05/02	16.0	11.6	13.6	05/05/03	nr	nr	nr
05/06/01	nr	nr	nr	05/06/02	15.8	11.5	13.5	05/06/03	nr	nr	nr
05/07/01	nr	nr	nr	05/07/02	15.4	11.6	13.4	05/07/03	nr	nr	nr
05/08/01	nr	nr	nr	05/08/02	14.9	10.7	12.6	05/08/03	nr	nr	nr
05/09/01	nr	nr	nr	05/09/02	14.9	10.5	12.6	05/09/03	nr	nr	nr
05/10/01	nr	nr	nr	05/10/02	13.6	11.0	12.4	05/10/03	nr	nr	nr
05/11/01	nr	nr	nr	05/11/02	14.9	10.1	12.2	05/11/03	nr	nr	nr
05/12/01	nr	nr	nr	05/12/02	15.7	11.0	13.2	05/12/03	nr	nr	nr
05/13/01	nr	nr	nr	05/13/02	16.5	12.4	14.1	05/13/03	nr	nr	nr
05/14/01	nr	nr	nr	05/14/02	16.5	12.3	14.1	05/14/03	nr	nr	nr
05/15/01	nr	nr	nr	05/15/02	16.8	12.6	14.4	05/15/03	nr	nr	nr
05/16/01	nr	nr	nr	05/16/02	17.4	12.7	14.9	05/16/03	nr	nr	nr
05/17/01	nr	nr	nr	05/17/02	17.7	14.0	15.5	05/17/03	nr	nr	nr
05/18/01	nr	nr	nr	05/18/02	17.1	13.3	14.9	05/18/03	nr	nr	nr
05/19/01	nr	nr	nr	05/19/02	14.1	11.9	12.9	05/19/03	nr	nr	nr
05/20/01	nr	nr	nr	05/20/02	11.8	9.9	11.0	05/20/03	nr	nr	nr
05/21/01	nr	nr	nr	05/21/02	11.5	9.1	10.0	05/21/03	nr	nr	nr
05/22/01	nr	nr	nr	05/22/02	13.0	8.7	10.6	05/22/03	nr	nr	nr
05/23/01	nr	nr	nr	05/23/02	14.1	9.3	11.4	05/23/03	nr	nr	nr
05/24/01	nr	nr	nr	05/24/02	15.7	10.5	12.8	05/24/03	nr	nr	nr
05/25/01	nr	nr	nr	05/25/02	16.6	11.9	14.0	05/25/03	nr	nr	nr
05/26/01	nr	nr	nr	05/26/02	17.4	12.9	14.8	05/26/03	nr	nr	nr
05/27/01	nr	nr	nr	05/27/02	16.3	13.5	14.8	05/27/03	nr	nr	nr
05/28/01	nr	nr	nr	05/28/02	18.1	13.3	15.3	05/28/03	nr	nr	nr
05/29/01	nr	nr	nr	05/29/02	19.7	14.1	16.5	05/29/03	nr	nr	nr
05/30/01	nr	nr	nr	05/30/02	21.0	15.7	18.0	05/30/03	nr	nr	nr
05/31/01	nr	nr	nr	05/31/02	21.7	16.8	18.9	05/31/03	nr	nr	nr
06/01/01	nr	nr	nr	06/01/02	20.8	16.8	18.5	06/01/03	nr	nr	nr
06/02/01	nr	nr	nr	06/02/02	20.2	15.7	17.7	06/02/03	nr	nr	nr
06/03/01	nr	nr	nr	06/03/02	20.2	15.4	17.5	06/03/03	nr	nr	nr
06/04/01	nr	nr	nr	06/04/02	20.3	14.9	17.3	06/04/03	nr	nr	nr
06/05/01	nr	nr	nr	06/05/02	21.5	15.8	18.3	06/05/03	nr	nr	nr
06/06/01	nr	nr	nr	06/06/02	21.3	16.5	18.6	06/06/03	nr	nr	nr
06/07/01	nr	nr	nr	06/07/02	20.7	16.5	18.4	06/07/03	nr	nr	nr
06/08/01	nr	nr	nr	06/08/02	19.5	15.8	17.4	06/08/03	nr	nr	nr
06/09/01	nr	nr	nr	06/09/02	18.4	14.3	16.1	06/09/03	nr	nr	nr
06/10/01	nr	nr	nr	06/10/02	18.7	13.8	16.0	06/10/03	nr	nr	nr
06/11/01	nr	nr	nr	06/11/02	19.7	14.7	16.7	06/11/03	nr	nr	nr
06/12/01	nr	nr	nr	06/12/02	20.3	15.4	17.4	06/12/03	nr	nr	nr
06/13/01	nr	nr	nr	06/13/02	20.7	15.7	17.9	06/13/03	nr	nr	nr
06/14/01	nr	nr	nr	06/14/02	21.0	16.3	18.4	06/14/03	nr	nr	nr
06/15/01	nr	nr	nr	06/15/02	21.3	16.3	18.5	06/15/03	nr	nr	nr
06/16/01	nr	nr	nr	06/16/02	21.2	16.3	18.4	06/16/03	nr	nr	nr
06/17/01	nr	nr	nr	06/17/02	21.0	16.0	18.3	06/17/03	nr	nr	nr
06/18/01	nr	nr	nr	06/18/02	21.7	16.8	18.9	06/18/03	nr	nr	nr
06/19/01	nr	nr	nr	06/19/02	22.0	17.0	19.1	06/19/03	Thermograph reinstalled		
06/20/01	nr	nr	nr	06/20/02	22.2	17.1	19.3	06/20/03	19.9	16.7	18.5
06/21/01	nr	nr	nr	06/21/02	21.7	17.3	19.2	06/21/03	19.2	15.6	17.1
06/22/01	nr	nr	nr	06/22/02	22.0	17.1	19.2	06/22/03	18.9	15.2	16.7
06/23/01	nr	nr	nr	06/23/02	22.7	17.6	19.7	06/23/03	18.4	14.6	16.1
06/24/01	nr	nr	nr	06/24/02	22.8	17.7	19.9	06/24/03	18.1	13.8	15.7
06/25/01	nr	nr	nr	06/25/02	23.3	17.9	20.2	06/25/03	19.1	14.1	16.3
06/26/01	nr	nr	nr	06/26/02	23.7	18.6	20.7	06/26/03	19.9	15.1	17.2
06/27/01	nr	nr	nr	06/27/02	23.7	18.4	20.7	06/27/03	20.9	16.2	18.2
06/28/01	nr	nr	nr	06/28/02	23.8	18.9	21.0	06/28/03	21.7	17.0	19.0
06/29/01	nr	nr	nr	06/29/02	24.4	19.0	21.3	06/29/03	21.2	17.1	18.9
06/30/01	nr	nr	nr	06/30/02	24.7	19.4	21.7	06/30/03	20.9	16.5	18.3

APPENDIX E, Table 5 (continued). Butte Creek water temperatures (Celsius) at Cable Bridge for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
07/01/01	nr	nr	nr	07/01/02	24.5	18.9	21.4	07/01/03	20.2	15.7	17.7
07/02/01	nr	nr	nr	07/02/02	24.4	19.4	21.5	07/02/03	19.9	15.6	17.4
07/03/01	nr	nr	nr	07/03/02	23.8	18.7	21.1	07/03/03	19.9	15.2	17.3
07/04/01	nr	nr	nr	07/04/02	24.0	18.7	21.2	07/04/03	20.5	15.6	17.7
07/05/01	nr	nr	nr	07/05/02	24.2	18.7	21.2	07/05/03	21.2	16.2	18.3
07/06/01	nr	nr	nr	07/06/02	24.7	19.0	21.5	07/06/03	21.3	16.5	18.6
07/07/01	nr	nr	nr	07/07/02	24.4	19.4	21.5	07/07/03	21.5	17.0	18.9
07/08/01	nr	nr	nr	07/08/02	24.4	18.7	21.3	07/08/03	21.0	16.3	18.5
07/09/01	nr	nr	nr	07/09/02	24.9	19.0	21.7	07/09/03	21.3	16.5	18.6
07/10/01	nr	nr	nr	07/10/02	25.7	19.7	22.4	07/10/03	21.7	17.1	19.0
07/11/01	nr	nr	nr	07/11/02	25.9	20.3	22.8	07/11/03	22.0	17.5	19.4
07/12/01	nr	nr	nr	07/12/02	25.7	21.5	23.4	07/12/03	22.2	17.6	19.6
07/13/01	nr	nr	nr	07/13/02	26.4	21.0	23.4	07/13/03	22.2	17.8	19.7
07/14/01	nr	nr	nr	07/14/02	26.4	21.2	23.5	07/14/03	22.0	17.6	19.5
07/15/01	nr	nr	nr	07/15/02	25.4	20.5	22.7	07/15/03	22.0	17.8	19.6
07/16/01	nr	nr	nr	07/16/02	24.9	19.4	21.9	07/16/03	22.0	17.8	19.6
07/17/01	nr	nr	nr	07/17/02	24.4	18.9	21.5	07/17/03	22.0	17.9	19.6
07/18/01	nr	nr	nr	07/18/02	24.0	19.2	21.4	07/18/03	22.3	18.1	19.9
07/19/01	nr	nr	nr	07/19/02	24.9	19.5	21.8	07/19/03	22.7	18.6	20.3
07/20/01	nr	nr	nr	07/20/02	25.4	19.9	22.3	07/20/03	23.5	19.2	20.9
07/21/01	nr	nr	nr	07/21/02	24.5	20.3	22.3	07/21/03	24.6	20.0	21.9
07/22/01	Thermograph first installed			07/22/02	24.9	20.3	22.4	07/22/03	25.1	20.7	22.6
07/23/01	23.3	20.0	21.8	07/23/02	24.7	19.7	21.9	07/23/03	25.1	21.3	22.9
07/24/01	23.8	18.1	20.5	07/24/02	24.7	19.2	21.6	07/24/03	25.1	21.5	22.8
07/25/01	24.2	18.7	21.2	07/25/02	24.2	18.7	21.2	07/25/03	24.6	21.0	22.4
07/26/01	24.5	19.4	21.5	07/26/02	24.0	18.6	21.1	07/26/03	24.7	20.2	22.1
07/27/01	24.3	18.9	21.2	07/27/02	24.9	19.2	21.7	07/27/03	24.7	20.0	21.9
07/28/01	23.6	18.2	20.6	07/28/02	25.1	19.9	22.2	07/28/03	25.1	20.0	22.1
07/29/01	23.3	18.1	20.4	07/29/02	25.1	20.0	22.3	07/29/03	25.4	20.5	22.6
07/30/01	22.8	18.4	20.3	07/30/02	24.9	20.3	22.4	07/30/03	24.7	21.3	22.8
07/31/01	23.1	17.9	20.2	07/31/02	25.1	20.7	22.7	07/31/03	24.0	20.7	22.1
08/01/01	23.3	18.1	20.3	08/01/02	25.1	20.2	22.3	08/01/03	22.5	20.5	21.5
08/02/01	23.3	17.9	20.3	08/02/02	22.3	20.0	21.0	08/02/03	21.7	20.0	20.6
08/03/01	23.0	17.6	20.0	08/03/02	24.5	19.8	21.8	08/03/03	22.9	18.7	20.3
08/04/01	22.8	17.9	20.0	08/04/02	22.3	18.9	20.5	08/04/03	22.7	18.6	20.2
08/05/01	23.0	17.6	20.0	08/05/02	22.6	17.7	19.9	08/05/03	22.2	18.4	19.9
08/06/01	23.5	17.9	20.3	08/06/02	22.0	16.9	19.1	08/06/03	21.7	17.9	19.4
08/07/01	24.0	18.4	20.8	08/07/02	21.8	16.3	18.7	08/07/03	21.2	17.1	18.8
08/08/01	24.7	19.2	21.6	08/08/02	22.1	16.1	18.8	08/08/03	21.0	16.7	18.4
08/09/01	24.9	19.8	22.0	08/09/02	22.8	16.8	19.5	08/09/03	21.0	16.5	18.4
08/10/01	24.5	19.2	21.5	08/10/02	23.3	17.7	20.3	08/10/03	21.0	16.7	18.5
08/11/01	24.0	18.5	21.1	08/11/02	24.0	18.2	20.8	08/11/03	20.9	16.7	18.3
08/12/01	23.6	18.5	20.8	08/12/02	24.2	18.5	21.1	08/12/03	20.5	16.2	18.0
08/13/01	23.3	18.1	20.4	08/13/02	24.7	19.5	21.8	08/13/03	20.4	15.9	17.7
08/14/01	23.3	17.6	20.2	08/14/02	24.9	19.8	22.1	08/14/03	20.2	16.0	17.8
08/15/01	23.3	17.4	20.0	08/15/02	24.9	20.0	22.2	08/15/03	20.5	16.2	17.9
08/16/01	23.1	17.3	19.9	08/16/02	24.9	20.2	22.3	08/16/03	20.4	15.9	17.7
08/17/01	22.0	17.4	19.6	08/17/02	24.2	20.0	21.9	08/17/03	20.7	15.9	17.8
08/18/01	23.0	17.3	19.8	08/18/02	24.2	19.3	21.5	08/18/03	21.2	16.5	18.4
08/19/01	22.8	17.3	19.8	08/19/02	23.0	19.0	20.8	08/19/03	21.5	17.1	18.8
08/20/01	22.0	17.1	19.4	08/20/02	22.5	18.1	20.0	08/20/03	21.5	17.0	18.8
08/21/01	21.8	16.8	19.1	08/21/02	21.8	17.4	19.4	08/21/03	19.7	17.8	18.6
08/22/01	21.6	16.8	19.0	08/22/02	21.6	16.9	19.0	08/22/03	19.2	17.6	18.1
08/23/01	21.1	16.9	18.9	08/23/02	21.3	16.5	18.7	08/23/03	20.4	16.3	17.9
08/24/01	22.3	16.9	19.3	08/24/02	21.3	16.3	18.5	08/24/03	20.9	16.7	18.2
08/25/01	22.5	16.9	19.4	08/25/02	21.3	16.3	18.5	08/25/03	21.0	16.7	18.5
08/26/01	22.8	17.3	19.7	08/26/02	21.8	16.8	19.0	08/26/03	21.0	17.3	18.7
08/27/01	23.3	17.6	20.1	08/27/02	22.1	16.6	19.1	08/27/03	21.3	17.3	18.9
08/28/01	23.3	17.7	20.3	08/28/02	22.8	17.6	19.8	08/28/03	20.7	16.7	18.4
08/29/01	23.3	18.2	20.5	08/29/02	22.5	17.9	20.0	08/29/03	20.4	15.9	17.9
08/30/01	22.8	18.1	20.3	08/30/02	22.6	17.9	19.9	08/30/03	20.5	16.2	18.0
08/31/01	22.6	18.1	20.1	08/31/02	22.6	17.7	19.8	08/31/03	20.4	16.8	18.3

APPENDIX E, Table 5 (continued). Butte Creek water temperatures (Celsius) at Cable Bridge for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
09/01/01	22.8	17.9	20.1	09/01/02	22.6	17.7	19.9	09/01/03	21.3	17.1	18.9
09/02/01	22.6	17.7	20.0	09/02/02	22.8	17.9	20.1	09/02/03	21.8	17.5	19.3
09/03/01	22.6	17.4	19.7	09/03/02	22.1	17.7	19.7	09/03/03	20.2	17.8	18.9
09/04/01	22.5	17.6	19.7	09/04/02	21.3	17.2	19.1	09/04/03	21.3	17.8	19.2
09/05/01	21.6	16.8	19.1	09/05/02	20.5	16.3	18.1	09/05/03	22.0	17.9	19.6
09/06/01	21.0	16.5	18.5	09/06/02	19.7	15.5	17.2	09/06/03	21.2	17.5	19.0
09/07/01	20.6	15.7	18.0	09/07/02	19.0	14.4	16.4	09/07/03	18.4	16.7	17.5
09/08/01	21.0	15.8	18.1	09/08/02	18.7	13.8	16.0	09/08/03	18.7	15.9	17.0
09/09/01	20.3	16.0	18.0	09/09/02	19.0	13.8	16.1	09/09/03	17.6	15.7	16.4
09/10/01	20.3	16.0	17.9	09/10/02	19.5	14.2	16.6	09/10/03	18.4	14.4	16.0
09/11/01	17.7	16.3	16.8	09/11/02	19.8	14.9	17.0	09/11/03	18.9	14.4	16.3
09/12/01	19.7	15.4	17.2	09/12/02	20.2	15.3	17.4	09/12/03	19.7	15.4	17.1
09/13/01	20.3	15.8	17.7	09/13/02	20.2	15.5	17.5	09/13/03	19.7	15.7	17.3
09/14/01	21.0	16.1	18.2	09/14/02	19.5	15.5	17.4	09/14/03	19.4	15.6	17.1
09/15/01	21.0	16.6	18.5	09/15/02	18.4	16.0	17.1	09/15/03	19.1	15.6	17.0
09/16/01	21.0	16.6	18.4	09/16/02	19.3	14.9	16.9	09/16/03	18.4	15.1	16.5
09/17/01	20.8	16.3	18.3	09/17/02	19.0	15.2	17.0	09/17/03	17.9	14.4	15.9
09/18/01	21.0	16.5	18.5	09/18/02	20.2	15.0	17.3	09/18/03	17.9	13.7	15.5
09/19/01	21.1	16.6	18.6	09/19/02	20.3	15.3	17.6	09/19/03	18.1	13.7	15.5
09/20/01	21.1	16.6	18.5	09/20/02	20.5	15.5	17.8	09/20/03	18.7	14.1	16.0
09/21/01	20.6	16.0	18.1	09/21/02	20.8	16.0	18.1	09/21/03	18.9	14.4	16.4
09/22/01	20.0	15.8	17.8	09/22/02	20.8	16.0	18.2	09/22/03	19.4	14.9	16.7
09/23/01	19.2	15.8	17.4	09/23/02	20.8	16.0	18.1	09/23/03	19.2	15.2	16.9
09/24/01	17.9	15.0	16.6	09/24/02	20.6	16.0	18.1	09/24/03	19.4	15.4	17.1
09/25/01	19.0	16.1	17.0	09/25/02	20.3	15.8	17.9	09/25/03	19.4	15.6	17.2
09/26/01	18.9	14.4	16.3	09/26/02	19.8	15.3	17.4	09/26/03	19.2	15.4	17.2
09/27/01	18.5	14.9	16.5	09/27/02	19.0	15.5	17.2	09/27/03	19.2	15.7	17.2
09/28/01	18.2	14.3	16.0	09/28/02	18.5	14.7	16.5	09/28/03	19.1	15.4	17.1
09/29/01	18.5	13.8	16.0	09/29/02	18.2	15.3	16.5	09/29/03	18.7	15.4	16.8
09/30/01	19.0	14.3	16.4	09/30/02	17.9	14.4	16.0	09/30/03	18.3	14.3	16.0
10/01/01	19.5	14.9	16.9	10/01/02	16.5	12.5	14.4	10/01/03	18.1	14.8	16.1
10/02/01	19.8	15.4	17.3	10/02/02	15.7	11.6	13.5	10/02/03	18.2	16.5	17.3
10/03/01	19.7	15.4	17.3	10/03/02	15.0	11.3	13.3	10/03/03	17.4	14.4	15.9
10/04/01	19.2	15.4	17.1	10/04/02	16.5	12.1	14.1	10/04/03	18.4	15.2	16.5
10/05/01	18.1	15.0	16.5	10/05/02	16.9	12.9	14.7	10/05/03	18.6	14.9	16.4
10/06/01	17.4	13.9	15.6	10/06/02	17.7	13.3	15.3	10/06/03	18.6	14.6	16.3
10/07/01	17.1	13.6	15.3	10/07/02	18.1	13.6	15.7	10/07/03	18.4	14.7	16.3
10/08/01	17.6	14.1	15.6	10/08/02	17.7	13.6	15.5	10/08/03	18.2	14.6	16.1
10/09/01	16.6	13.2	14.8	10/09/02	17.2	13.8	15.4	10/09/03	17.0	14.0	15.3
10/10/01	15.8	12.2	14.0	10/10/02	17.1	14.4	15.5	10/10/03	15.9	12.3	13.8
10/11/01	16.0	13.2	14.3	10/11/02	16.5	12.9	14.5	10/11/03	15.2	11.5	13.1
10/12/01	15.8	11.9	13.7	10/12/02	15.8	11.9	13.8	10/12/03	15.2	11.6	13.1
10/13/01	16.0	11.9	13.9	10/13/02	15.7	11.6	13.5	10/13/03	14.6	10.7	12.5
10/14/01	15.0	12.4	13.7	10/14/02	15.7	11.8	13.5	10/14/03	14.6	10.9	12.5
10/15/01	15.5	12.1	13.7	10/15/02	15.2	11.6	13.3	10/15/03	13.7	10.9	12.3
10/16/01	15.5	12.7	14.0	10/16/02	14.7	11.3	12.9	10/16/03	14.1	10.9	12.4
10/17/01	15.5	13.0	14.1	10/17/02	14.6	11.0	12.7	10/17/03	14.1	11.0	12.4
10/18/01	15.7	12.1	13.7	10/18/02	14.1	11.3	12.7	10/18/03	14.1	11.0	12.4
10/19/01	14.6	11.8	13.3	10/19/02	14.7	11.3	12.9	10/19/03	14.4	11.2	12.6
10/20/01	14.4	11.8	13.1	10/20/02	14.9	11.5	13.0	10/20/03	15.2	11.7	13.2
10/21/01	14.4	11.3	12.8	10/21/02	14.6	11.3	12.8	10/21/03	15.4	12.0	13.5
10/22/01	14.3	11.3	12.6	10/22/02	14.2	11.0	12.5	10/22/03	14.9	12.1	13.4
10/23/01	14.4	11.5	12.7	10/23/02	13.6	10.8	12.1	10/23/03	15.2	12.0	13.3
10/24/01	13.3	9.9	11.6	10/24/02	12.7	10.7	11.6	10/24/03	14.3	11.2	12.6
10/25/01	13.2	10.1	11.6	10/25/02	13.5	10.8	11.9	10/25/03	14.8	11.7	13.0
10/26/01	13.3	10.2	11.6	10/26/02	13.2	10.4	11.7	10/26/03	15.2	12.3	13.5
10/27/01	12.6	10.6	11.6	10/27/02	13.0	10.1	11.6	10/27/03	14.9	11.8	13.3
10/28/01	12.2	11.3	11.8	10/28/02	12.7	10.1	11.3	10/28/03	15.2	12.1	13.5
10/29/01	12.6	11.5	11.9	10/29/02	10.7	9.3	9.8	10/29/03	15.1	12.4	13.4
10/30/01	12.2	11.8	12.0	10/30/02	Thermograph lost			10/30/03	12.7	10.4	11.5
10/31/01	13.0	11.2	11.9	10/31/02	nr	nr	nr	10/31/03	10.9	9.6	10.3

APPENDIX E, Table 5 (continued). Butte Creek water temperatures (Celsius) at Cable Bridge for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
11/01/01	12.9	10.2	11.3	11/01/02	nr	nr	nr	11/01/03	10.4	7.9	9.0
11/02/01	12.4	9.9	11.0	11/02/02	nr	nr	nr	11/02/03	8.9	7.5	8.1
11/03/01	12.4	9.6	10.8	11/03/02	nr	nr	nr	11/03/03	8.7	6.9	7.7
11/04/01	12.6	9.8	10.9	11/04/02	nr	nr	nr	11/04/03	8.2	5.8	6.9
11/05/01	12.4	9.8	10.9	11/05/02	nr	nr	nr	11/05/03	9.2	7.0	7.7
11/06/01	11.8	9.9	10.8	11/06/02	nr	nr	nr	11/06/03	8.4	6.5	7.6
11/07/01	11.5	9.0	10.1	11/07/02	nr	nr	nr	11/07/03	9.0	7.8	8.3
11/08/01	11.2	8.5	9.7	11/08/02	nr	nr	nr	11/08/03	9.9	8.2	9.0
11/09/01	11.0	8.7	9.8	11/09/02	nr	nr	nr	11/09/03	10.3	8.9	9.5
11/10/01	11.2	9.0	10.1	11/10/02	nr	nr	nr	11/10/03	10.3	8.1	9.0
11/11/01	11.5	10.4	10.9	11/11/02	nr	nr	nr	11/11/03	9.6	7.3	8.3
11/12/01	11.5	10.9	11.1	11/12/02	nr	nr	nr	11/12/03	9.8	7.2	8.2
11/13/01	11.0	10.5	10.8	11/13/02	nr	nr	nr	11/13/03	9.6	7.2	8.2
11/14/01	12.1	10.2	10.8	11/14/02	nr	nr	nr	11/14/03	8.2	7.9	8.0
11/15/01	11.9	10.2	10.8	11/15/02	nr	nr	nr	11/15/03	nr	nr	nr
11/16/01	10.9	9.8	10.3	11/16/02	nr	nr	nr	11/16/03	nr	nr	nr
11/17/01	11.3	10.2	10.6	11/17/02	nr	nr	nr	11/17/03	nr	nr	nr
11/18/01	10.5	9.0	9.9	11/18/02	nr	nr	nr	11/18/03	nr	nr	nr
11/19/01	10.5	9.1	9.9	11/19/02	nr	nr	nr	11/19/03	nr	nr	nr
11/20/01	10.7	9.9	10.3	11/20/02	nr	nr	nr	11/20/03	nr	nr	nr
11/21/01	10.9	10.5	10.6	11/21/02	nr	nr	nr	11/21/03	nr	nr	nr
11/22/01	11.3	9.8	10.7	11/22/02	nr	nr	nr	11/22/03	nr	nr	nr
11/23/01	9.6	8.5	9.0	11/23/02	nr	nr	nr	11/23/03	nr	nr	nr
11/24/01	10.2	8.4	9.1	11/24/02	nr	nr	nr	11/24/03	nr	nr	nr
11/25/01	8.8	7.5	8.1	11/25/02	nr	nr	nr	11/25/03	nr	nr	nr
11/26/01	8.1	6.2	7.1	11/26/02	nr	nr	nr	11/26/03	nr	nr	nr
11/27/01	6.7	5.0	5.8	11/27/02	nr	nr	nr	11/27/03	nr	nr	nr
11/28/01	6.2	5.7	5.9	11/28/02	nr	nr	nr	11/28/03	nr	nr	nr
11/29/01	6.5	5.7	6.1	11/29/02	nr	nr	nr	11/29/03	nr	nr	nr
11/30/01	6.1	5.3	5.6	11/30/02	nr	nr	nr	11/30/03	nr	nr	nr
12/01/01	8.1	5.7	6.9	12/01/02	nr	nr	nr	12/01/03	nr	nr	nr
12/02/01	8.8	7.9	8.4	12/02/02	nr	nr	nr	12/02/03	nr	nr	nr
12/03/01	8.2	7.3	7.9	12/03/02	nr	nr	nr	12/03/03	nr	nr	nr
12/04/01	7.1	5.9	6.5	12/04/02	nr	nr	nr	12/04/03	nr	nr	nr
12/05/01	6.7	6.1	6.5	12/05/02	nr	nr	nr	12/05/03	nr	nr	nr
12/06/01	7.9	6.2	7.2	12/06/02	nr	nr	nr	12/06/03	nr	nr	nr
12/07/01	7.8	6.7	7.3	12/07/02	nr	nr	nr	12/07/03	nr	nr	nr
12/08/01	7.3	6.4	6.9	12/08/02	nr	nr	nr	12/08/03	nr	nr	nr
12/09/01	7.6	6.4	6.9	12/09/02	nr	nr	nr	12/09/03	nr	nr	nr
12/10/01	6.7	5.4	5.9	12/10/02	nr	nr	nr	12/10/03	nr	nr	nr
12/11/01	5.9	4.5	5.1	12/11/02	nr	nr	nr	12/11/03	nr	nr	nr
12/12/01	5.7	4.3	5.0	12/12/02	nr	nr	nr	12/12/03	nr	nr	nr
12/13/01	6.1	5.0	5.6	12/13/02	nr	nr	nr	12/13/03	nr	nr	nr
12/14/01	6.8	5.3	6.3	12/14/02	nr	nr	nr	12/14/03	nr	nr	nr
12/15/01	5.7	4.3	5.0	12/15/02	nr	nr	nr	12/15/03	nr	nr	nr
12/16/01	5.6	4.8	5.2	12/16/02	nr	nr	nr	12/16/03	nr	nr	nr
12/17/01	7.1	5.6	6.5	12/17/02	nr	nr	nr	12/17/03	nr	nr	nr
12/18/01	7.6	7.1	7.3	12/18/02	nr	nr	nr	12/18/03	nr	nr	nr
12/19/01	7.8	7.3	7.5	12/19/02	nr	nr	nr	12/19/03	nr	nr	nr
12/20/01	7.6	7.0	7.4	12/20/02	nr	nr	nr	12/20/03	nr	nr	nr
12/21/01	7.3	6.7	7.0	12/21/02	nr	nr	nr	12/21/03	nr	nr	nr
12/22/01	7.6	7.1	7.3	12/22/02	nr	nr	nr	12/22/03	nr	nr	nr
12/23/01	7.5	6.7	7.1	12/23/02	nr	nr	nr	12/23/03	nr	nr	nr
12/24/01	6.7	5.7	6.2	12/24/02	nr	nr	nr	12/24/03	nr	nr	nr
12/25/01	6.8	5.9	6.4	12/25/02	nr	nr	nr	12/25/03	nr	nr	nr
12/26/01	7.9	6.8	7.3	12/26/02	nr	nr	nr	12/26/03	nr	nr	nr
12/27/01	7.9	7.5	7.6	12/27/02	nr	nr	nr	12/27/03	nr	nr	nr
12/28/01	8.1	7.3	7.5	12/28/02	nr	nr	nr	12/28/03	nr	nr	nr
12/29/01	8.5	8.1	8.3	12/29/02	nr	nr	nr	12/29/03	nr	nr	nr
12/30/01	9.8	8.4	8.7	12/30/02	nr	nr	nr	12/30/03	nr	nr	nr
12/31/01	9.8	9.3	9.6	12/31/02	nr	nr	nr	12/31/03	nr	nr	nr

APPENDIX E, Table 6. Butte Creek water temperatures (Celsius) at Covered Bridge (USGS Gauge #113900000, Butte Creek near Chico) for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
05/01/01	15.8	11.5	13.3	05/01/02	12.7	9.0	10.6	05/01/03	11.5	9.3	10.4
05/02/01	14.7	10.5	12.2	05/02/02	14.7	9.1	11.6	05/02/03	11.0	10.2	10.5
05/03/01	13.7	9.4	11.3	05/03/02	15.5	10.8	12.7	05/03/03	10.8	10.2	10.5
05/04/01	14.3	9.5	11.6	05/04/02	16.7	11.3	13.7	05/04/03	10.8	9.6	10.2
05/05/01	15.1	10.4	12.4	05/05/02	17.2	12.1	14.3	05/05/03	11.9	9.6	10.6
05/06/01	15.2	10.5	12.5	05/06/02	17.1	12.0	14.2	05/06/03	10.6	9.8	10.3
05/07/01	16.3	11.1	13.3	05/07/02	16.5	12.1	14.0	05/07/03	11.5	9.8	10.6
05/08/01	16.9	12.2	14.1	05/08/02	16.2	11.0	13.3	05/08/03	10.5	9.0	9.8
05/09/01	17.0	12.7	14.5	05/09/02	16.2	11.1	13.4	05/09/03	10.6	8.2	9.2
05/10/01	17.7	12.8	14.7	05/10/02	14.8	11.5	13.0	05/10/03	12.1	9.2	10.3
05/11/01	17.5	12.8	14.8	05/11/02	16.3	10.4	13.0	05/11/03	11.7	9.8	10.8
05/12/01	17.0	13.1	14.7	05/12/02	17.1	11.5	14.0	05/12/03	13.1	10.5	11.6
05/13/01	16.9	12.6	14.4	05/13/02	17.6	12.9	14.9	05/13/03	14.1	11.2	12.4
05/14/01	15.3	12.4	13.8	05/14/02	17.8	12.7	14.9	05/14/03	14.5	12.0	13.0
05/15/01	15.3	13.0	13.9	05/15/02	18.1	13.0	15.2	05/15/03	14.3	12.2	13.1
05/16/01	17.5	12.7	14.8	05/16/02	18.7	13.1	15.6	05/16/03	14.0	11.8	12.8
05/17/01	18.4	13.1	15.5	05/17/02	18.8	14.2	16.2	05/17/03	13.6	11.1	12.2
05/18/01	19.5	14.0	16.4	05/18/02	18.1	13.6	15.5	05/18/03	13.2	10.7	11.8
05/19/01	20.2	14.7	17.1	05/19/02	14.2	12.2	13.2	05/19/03	14.3	10.8	12.3
05/20/01	21.0	15.1	17.7	05/20/02	12.1	10.3	11.5	05/20/03	15.3	11.5	13.2
05/21/01	21.6	16.2	18.5	05/21/02	12.5	9.6	10.7	05/21/03	16.1	12.3	13.9
05/22/01	22.0	16.4	18.9	05/22/02	14.2	9.0	11.3	05/22/03	17.1	13.4	15.0
05/23/01	22.7	17.1	19.5	05/23/02	15.3	9.5	12.2	05/23/03	17.0	14.3	15.4
05/24/01	22.7	17.1	19.6	05/24/02	16.8	10.8	13.5	05/24/03	16.3	14.2	15.0
05/25/01	21.2	17.3	19.1	05/25/02	17.8	12.1	14.7	05/25/03	15.8	13.6	14.4
05/26/01	22.2	16.7	19.1	05/26/02	18.5	13.1	15.5	05/26/03	15.6	12.8	14.0
05/27/01	21.1	16.1	18.4	05/27/02	17.1	13.9	15.4	05/27/03	16.3	12.7	14.3
05/28/01	20.9	15.4	17.9	05/28/02	19.0	13.6	16.0	05/28/03	17.4	14.1	15.5
05/29/01	21.7	15.7	18.4	05/29/02	20.8	14.4	17.3	05/29/03	16.1	13.8	14.9
05/30/01	22.5	16.5	19.1	05/30/02	22.1	16.0	18.8	05/30/03	16.2	13.1	14.3
05/31/01	22.6	17.0	19.5	05/31/02	22.7	17.0	19.6	05/31/03	16.9	13.3	14.8
06/01/01	21.0	17.5	19.0	06/01/02	21.6	17.1	19.1	06/01/03	17.3	13.8	15.3
06/02/01	21.0	16.3	18.3	06/02/02	21.1	15.9	18.2	06/02/03	17.7	13.9	15.5
06/03/01	20.0	15.2	17.3	06/03/02	21.1	15.7	18.1	06/03/03	18.3	14.3	16.1
06/04/01	19.5	14.1	16.6	06/04/02	21.3	15.2	18.0	06/04/03	18.8	15.1	16.7
06/05/01	18.6	15.1	16.5	06/05/02	22.5	16.1	19.1	06/05/03	19.1	15.3	17.0
06/06/01	20.0	14.5	16.9	06/06/02	22.7	16.7	19.4	06/06/03	19.2	15.7	17.2
06/07/01	21.2	15.3	17.9	06/07/02	22.0	16.8	19.1	06/07/03	19.6	15.8	17.4
06/08/01	21.6	16.0	18.5	06/08/02	20.5	16.2	18.0	06/08/03	20.1	16.2	18.0
06/09/01	21.5	16.1	18.5	06/09/02	19.6	14.7	16.8	06/09/03	20.2	16.6	18.1
06/10/01	21.5	15.8	18.4	06/10/02	20.0	14.1	16.8	06/10/03	19.3	16.0	17.4
06/11/01	19.6	16.1	17.9	06/11/02	20.9	14.8	17.6	06/11/03	19.1	15.3	17.0
06/12/01	21.1	15.8	18.1	06/12/02	21.6	15.6	18.2	06/12/03	18.8	15.2	16.8
06/13/01	20.7	14.9	17.6	06/13/02	21.9	16.0	18.7	06/13/03	19.0	15.4	17.0
06/14/01	21.5	15.2	18.0	06/14/02	22.2	16.6	19.1	06/14/03	19.2	15.2	16.9
06/15/01	22.1	16.0	18.7	06/15/02	22.5	16.7	19.2	06/15/03	19.5	15.3	17.2
06/16/01	22.6	16.6	19.4	06/16/02	22.2	16.7	19.2	06/16/03	20.3	15.9	17.9
06/17/01	23.0	17.1	19.8	06/17/02	22.2	16.4	19.1	06/17/03	21.3	17.0	18.9
06/18/01	23.3	17.2	20.0	06/18/02	22.9	17.4	19.7	06/18/03	20.7	17.7	19.0
06/19/01	23.6	17.6	20.3	06/19/02	23.0	17.3	19.9	06/19/03	20.6	17.1	18.7
06/20/01	24.1	17.9	20.7	06/20/02	23.3	17.4	20.1	06/20/03	20.3	16.8	18.4
06/21/01	24.7	18.7	21.4	06/21/02	22.6	17.7	19.9	06/21/03	19.8	16.3	17.9
06/22/01	25.1	19.2	21.9	06/22/02	23.0	17.4	20.0	06/22/03	19.6	15.9	17.5
06/23/01	23.9	18.8	21.1	06/23/02	23.7	17.8	20.5	06/23/03	19.2	15.2	17.0
06/24/01	21.4	17.6	19.5	06/24/02	24.0	18.0	20.7	06/24/03	18.8	14.6	16.6
06/25/01	19.2	17.2	18.2	06/25/02	24.4	18.2	21.0	06/25/03	19.7	14.7	17.0
06/26/01	18.7	16.3	17.4	06/26/02	24.6	18.8	21.5	06/26/03	20.5	15.6	17.9
06/27/01	16.9	15.7	16.4	06/27/02	24.6	18.7	21.5	06/27/03	21.5	16.6	18.9
06/28/01	20.9	14.5	17.3	06/28/02	24.7	19.2	21.8	06/28/03	22.1	17.5	19.6
06/29/01	22.2	15.9	18.8	06/29/02	25.3	19.3	22.1	06/29/03	21.8	17.7	19.6
06/30/01	23.0	16.8	19.8	06/30/02	25.6	19.7	22.4	06/30/03	21.4	17.1	19.1

APPENDIX E, Table 6 (continued).

Butte Creek water temperatures (Celsius) at Covered Bridge (USGS Gauge #113900000, Butte Creek near Chico) for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
07/01/01	24.0	17.7	20.6	07/01/02	25.6	19.2	22.2	07/01/03	21.2	16.5	18.6
07/02/01	24.4	18.1	21.1	07/02/02	25.4	19.7	22.3	07/02/03	20.9	16.0	18.2
07/03/01	24.0	19.0	21.2	07/03/02	24.9	19.1	21.9	07/03/03	20.9	15.7	18.1
07/04/01	23.9	19.6	21.6	07/04/02	25.0	19.3	22.0	07/04/03	21.5	15.9	18.5
07/05/01	25.3	19.8	22.3	07/05/02	25.1	19.1	22.0	07/05/03	22.1	16.6	19.1
07/06/01	24.7	19.4	21.9	07/06/02	25.6	19.5	22.4	07/06/03	22.2	17.1	19.5
07/07/01	24.0	19.0	21.3	07/07/02	25.1	19.8	22.3	07/07/03	22.3	17.6	19.8
07/08/01	24.9	18.7	21.6	07/08/02	25.1	19.2	22.1	07/08/03	22.1	17.0	19.4
07/09/01	25.1	19.3	22.0	07/09/02	25.9	19.4	22.5	07/09/03	22.4	17.2	19.5
07/10/01	25.1	19.6	22.2	07/10/02	26.7	20.0	23.2	07/10/03	22.7	17.7	20.0
07/11/01	24.6	19.8	22.0	07/11/02	26.9	20.7	23.7	07/11/03	22.9	18.1	20.2
07/12/01	24.6	19.1	21.6	07/12/02	26.6	21.9	24.0	07/12/03	23.1	18.3	20.5
07/13/01	24.9	19.0	21.8	07/13/02	27.2	21.4	24.2	07/13/03	23.1	18.5	20.6
07/14/01	24.6	19.0	21.5	07/14/02	27.1	21.7	24.3	07/14/03	23.0	18.3	20.4
07/15/01	23.8	18.5	21.0	07/15/02	26.1	20.9	23.4	07/15/03	23.1	18.5	20.5
07/16/01	23.0	18.3	20.4	07/16/02	25.5	19.8	22.6	07/16/03	23.2	18.5	20.6
07/17/01	22.9	17.4	20.0	07/17/02	25.3	19.4	22.2	07/17/03	23.3	18.5	20.6
07/18/01	23.1	17.4	20.1	07/18/02	24.9	19.7	22.2	07/18/03	23.6	18.7	20.9
07/19/01	23.2	17.7	20.2	07/19/02	25.9	19.9	22.7	07/19/03	23.5	19.1	21.2
07/20/01	23.0	17.3	19.9	07/20/02	26.3	20.3	23.1	07/20/03	24.2	19.8	21.8
07/21/01	22.7	17.1	19.8	07/21/02	25.1	20.9	23.0	07/21/03	25.4	20.5	22.8
07/22/01	23.1	17.0	19.9	07/22/02	25.7	20.7	23.1	07/22/03	26.0	21.2	23.4
07/23/01	23.7	17.6	20.5	07/23/02	25.5	20.0	22.6	07/23/03	26.0	21.9	23.7
07/24/01	24.6	18.5	21.4	07/24/02	25.4	19.7	22.4	07/24/03	25.6	22.2	23.6
07/25/01	25.0	19.2	22.0	07/25/02	25.0	19.2	22.0	07/25/03	25.1	21.6	23.3
07/26/01	25.2	19.7	22.3	07/26/02	25.0	19.0	21.9	07/26/03	25.4	20.9	23.0
07/27/01	25.0	19.3	22.0	07/27/02	25.6	19.8	22.6	07/27/03	25.4	20.6	22.9
07/28/01	24.4	18.6	21.4	07/28/02	25.9	20.4	23.1	07/28/03	25.7	20.7	23.1
07/29/01	24.1	18.6	21.2	07/29/02	25.8	20.3	23.0	07/29/03	26.1	21.2	23.6
07/30/01	23.7	18.8	21.1	07/30/02	25.6	20.7	23.1	07/30/03	25.6	22.0	23.6
07/31/01	24.0	18.4	21.0	07/31/02	25.9	21.1	23.4	07/31/03	24.9	21.4	23.0
08/01/01	24.1	18.5	21.1	08/01/02	25.9	20.6	23.1	08/01/03	23.5	21.3	22.4
08/02/01	24.1	18.3	21.1	08/02/02	25.7	20.5	22.9	08/02/03	22.5	20.7	21.4
08/03/01	23.7	18.0	20.7	08/03/02	25.2	20.2	22.5	08/03/03	23.9	19.5	21.4
08/04/01	23.5	18.5	20.8	08/04/02	22.9	19.2	21.1	08/04/03	23.7	19.3	21.3
08/05/01	23.7	18.0	20.8	08/05/02	23.3	18.1	20.6	08/05/03	23.2	18.9	20.9
08/06/01	24.2	18.2	21.1	08/06/02	22.7	17.3	19.9	08/06/03	22.7	18.5	20.4
08/07/01	24.6	18.7	21.5	08/07/02	22.5	16.7	19.5	08/07/03	22.2	17.7	19.8
08/08/01	25.5	19.6	22.4	08/08/02	22.8	16.5	19.6	08/08/03	22.0	17.3	19.5
08/09/01	25.4	20.3	22.8	08/09/02	23.6	17.1	20.3	08/09/03	22.0	17.2	19.5
08/10/01	24.9	19.7	22.2	08/10/02	24.0	18.2	21.0	08/10/03	22.2	17.2	19.5
08/11/01	24.6	19.0	21.8	08/11/02	24.6	18.6	21.5	08/11/03	22.0	17.1	19.4
08/12/01	24.1	19.1	21.5	08/12/02	24.9	18.8	21.8	08/12/03	21.6	16.7	19.0
08/13/01	23.9	18.5	21.1	08/13/02	25.4	19.8	22.5	08/13/03	21.5	16.5	18.8
08/14/01	23.9	18.1	20.9	08/14/02	25.5	20.1	22.7	08/14/03	21.4	16.6	18.9
08/15/01	23.7	18.0	20.8	08/15/02	25.5	20.3	22.8	08/15/03	21.5	16.6	18.9
08/16/01	23.7	17.8	20.7	08/16/02	25.5	20.5	22.9	08/16/03	21.5	16.3	18.7
08/17/01	22.7	17.8	20.4	08/17/02	24.9	20.3	22.5	08/17/03	21.6	16.5	18.9
08/18/01	23.5	17.8	20.6	08/18/02	24.7	19.7	22.1	08/18/03	22.1	17.0	19.4
08/19/01	23.5	17.9	20.7	08/19/02	23.6	19.4	21.5	08/19/03	22.4	17.6	19.8
08/20/01	22.6	17.7	20.2	08/20/02	23.2	18.4	20.7	08/20/03	22.4	17.5	19.8
08/21/01	22.3	17.4	19.8	08/21/02	22.5	17.7	20.1	08/21/03	20.7	18.2	19.5
08/22/01	22.2	17.3	19.8	08/22/02	22.3	17.4	19.8	08/22/03	19.9	18.3	18.9
08/23/01	21.6	17.6	19.7	08/23/02	22.0	16.9	19.4	08/23/03	21.5	16.8	18.9
08/24/01	22.9	17.5	20.1	08/24/02	22.0	16.6	19.2	08/24/03	21.9	17.2	19.3
08/25/01	23.0	17.5	20.2	08/25/02	22.0	16.7	19.3	08/25/03	22.0	17.2	19.4
08/26/01	23.4	17.7	20.5	08/26/02	22.4	17.1	19.7	08/26/03	22.0	17.9	19.6
08/27/01	23.7	18.0	20.8	08/27/02	22.6	16.9	19.8	08/27/03	22.1	17.7	19.8
08/28/01	23.7	18.3	21.0	08/28/02	23.4	17.7	20.5	08/28/03	21.5	17.3	19.3
08/29/01	23.8	18.7	21.2	08/29/02	23.0	18.3	20.6	08/29/03	21.2	16.5	18.8
08/30/01	23.2	18.7	20.9	08/30/02	23.1	18.2	20.6	08/30/03	21.4	16.7	18.9
08/31/01	23.1	18.6	20.8	08/31/02	23.2	18.0	20.5	08/31/03	21.2	17.3	19.2

APPENDIX E, Table 6 (continued). Butte Creek water temperatures (Celsius) at Covered Bridge (USGS Gauge #113900000, Butte Creek near Chico) for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
09/01/01	23.4	18.5	20.8	09/01/02	23.4	18.0	20.6	09/01/03	22.1	17.6	19.7
09/02/01	23.2	18.2	20.6	09/02/02	23.5	18.2	20.7	09/02/03	22.6	18.0	20.1
09/03/01	23.0	17.9	20.4	09/03/02	22.7	18.0	20.3	09/03/03	21.0	18.3	19.6
09/04/01	22.9	18.1	20.4	09/04/02	22.0	17.6	19.7	09/04/03	22.0	18.3	20.1
09/05/01	22.2	17.4	19.8	09/05/02	20.9	16.6	18.7	09/05/03	22.5	18.5	20.4
09/06/01	21.4	17.0	19.2	09/06/02	20.3	16.0	17.9	09/06/03	21.8	18.0	19.8
09/07/01	21.2	16.2	18.7	09/07/02	19.6	14.7	17.1	09/07/03	19.2	17.2	18.3
09/08/01	21.3	16.4	18.9	09/08/02	19.4	14.2	16.7	09/08/03	19.6	16.5	17.9
09/09/01	20.9	16.6	18.7	09/09/02	19.6	14.1	16.8	09/09/03	18.6	16.3	17.2
09/10/01	20.7	16.5	18.6	09/10/02	20.1	14.6	17.3	09/10/03	19.2	15.2	17.0
09/11/01	18.3	16.8	17.4	09/11/02	20.5	15.1	17.7	09/11/03	19.6	15.0	17.2
09/12/01	20.2	15.8	17.9	09/12/02	20.7	15.6	18.0	09/12/03	20.2	15.8	17.9
09/13/01	20.7	16.3	18.6	09/13/02	20.7	15.8	18.2	09/13/03	20.2	16.0	18.1
09/14/01	21.4	16.7	18.9	09/14/02	20.1	15.7	17.9	09/14/03	20.1	16.0	18.0
09/15/01	21.4	17.2	19.2	09/15/02	19.0	16.2	17.7	09/15/03	19.7	16.1	17.8
09/16/01	21.2	17.2	19.1	09/16/02	19.8	15.3	17.5	09/16/03	19.0	15.7	17.3
09/17/01	21.2	16.8	19.0	09/17/02	19.6	15.5	17.5	09/17/03	18.6	15.1	16.8
09/18/01	21.3	17.1	19.2	09/18/02	20.4	15.5	17.9	09/18/03	18.5	14.4	16.4
09/19/01	21.5	17.1	19.3	09/19/02	20.7	15.8	18.2	09/19/03	18.6	14.2	16.0
09/20/01	21.4	17.1	19.2	09/20/02	20.8	16.0	18.3	09/20/03	19.2	14.7	17.0
09/21/01	20.9	16.5	18.7	09/21/02	21.2	16.4	18.7	09/21/03	19.5	15.1	17.3
09/22/01	20.4	16.5	18.5	09/22/02	21.2	16.5	18.7	09/22/03	19.7	15.5	17.6
09/23/01	19.6	16.3	18.1	09/23/02	21.2	16.4	18.7	09/23/03	19.7	15.8	17.8
09/24/01	18.3	15.6	17.2	09/24/02	21.0	16.5	18.6	09/24/03	19.8	16.0	18.0
09/25/01	19.7	16.6	17.8	09/25/02	20.7	16.2	18.4	09/25/03	19.7	16.2	18.1
09/26/01	19.2	14.8	17.0	09/26/02	20.1	15.7	18.0	09/26/03	19.7	16.1	18.0
09/27/01	19.2	15.4	17.2	09/27/02	19.5	16.1	17.7	09/27/03	19.7	16.3	18.1
09/28/01	18.7	14.8	16.7	09/28/02	19.0	15.1	17.0	09/28/03	19.6	16.1	17.9
09/29/01	18.9	14.3	16.6	09/29/02	19.2	15.7	17.1	09/29/03	19.2	16.1	17.7
09/30/01	16.6	16.6	16.6	09/30/02	16.6	16.6	16.6	09/30/03	nr	nr	nr
10/01/01	19.8	15.5	17.6	10/01/02	16.7	13.0	14.9	10/01/03	18.7	15.4	17.0
10/02/01	20.1	15.9	18.0	10/02/02	16.0	12.0	14.0	10/02/03	18.3	15.0	16.8
10/03/01	20.0	15.9	18.0	10/03/02	15.5	11.8	13.8	10/03/03	17.9	15.2	16.6
10/04/01	19.6	15.8	17.7	10/04/02	16.8	12.6	14.7	10/04/03	18.6	16.0	17.2
10/05/01	18.6	15.5	17.1	10/05/02	17.3	13.3	15.3	10/05/03	18.7	15.6	17.2
10/06/01	17.8	14.3	16.1	10/06/02	18.1	13.7	15.9	10/06/03	18.7	15.3	17.0
10/07/01	17.6	14.1	15.9	10/07/02	18.3	14.1	16.2	10/07/03	18.7	15.5	17.1
10/08/01	18.1	14.7	16.3	10/08/02	18.0	14.0	16.0	10/08/03	18.5	15.3	16.9
10/09/01	16.9	13.6	15.3	10/09/02	17.7	14.1	15.9	10/09/03	17.3	14.6	16.0
10/10/01	16.2	12.6	14.5	10/10/02	17.6	14.8	16.0	10/10/03	16.0	13.0	14.6
10/11/01	16.5	13.7	14.9	10/11/02	16.7	13.2	15.0	10/11/03	15.5	12.2	14.0
10/12/01	16.1	12.3	14.3	10/12/02	16.1	12.2	14.2	10/12/03	15.5	12.3	13.9
10/13/01	16.3	12.3	14.4	10/13/02	16.0	12.0	14.0	10/13/03	14.8	11.3	13.2
10/14/01	15.5	12.8	14.2	10/14/02	16.0	12.1	14.0	10/14/03	14.9	11.6	13.3
10/15/01	16.0	12.5	14.2	10/15/02	15.4	12.0	13.7	10/15/03	14.2	11.5	13.0
10/16/01	16.0	13.1	14.6	10/16/02	15.1	11.7	13.4	10/16/03	14.6	11.5	13.1
10/17/01	16.0	13.4	14.6	10/17/02	14.8	12.1	13.6	10/17/03	14.6	11.8	13.2
10/18/01	15.8	12.4	14.2	10/18/02	14.5	11.7	13.2	10/18/03	14.5	11.8	13.2
10/19/01	15.1	12.2	13.8	10/19/02	15.0	11.6	13.3	10/19/03	14.9	11.9	13.5
10/20/01	14.9	12.2	13.6	10/20/02	15.1	11.8	13.5	10/20/03	15.5	12.3	14.0
10/21/01	14.7	11.7	13.2	10/21/02	14.8	11.6	13.3	10/21/03	15.7	12.6	14.2
10/22/01	14.6	11.6	13.1	10/22/02	14.5	11.3	12.9	10/22/03	15.4	12.8	14.2
10/23/01	14.6	11.8	13.2	10/23/02	13.9	11.4	12.6	10/23/03	15.5	12.6	14.1
10/24/01	13.6	10.2	12.0	10/24/02	13.0	11.1	12.0	10/24/03	14.7	11.8	13.4
10/25/01	13.5	10.3	12.0	10/25/02	13.9	11.3	12.4	10/25/03	15.2	12.1	13.7
10/26/01	13.6	10.5	12.1	10/26/02	13.5	10.8	12.1	10/26/03	15.6	12.8	14.3
10/27/01	13.2	10.8	12.0	10/27/02	13.4	10.4	12.0	10/27/03	15.3	12.5	14.0
10/28/01	12.9	11.8	12.3	10/28/02	13.2	10.4	11.8	10/28/03	15.3	12.7	14.1
10/29/01	13.1	11.8	12.4	10/29/02	12.7	9.6	11.2	10/29/03	15.3	12.9	14.1
10/30/01	13.0	12.2	12.5	10/30/02	11.7	8.9	10.3	10/30/03	13.2	11.2	12.3
10/31/01	13.5	11.6	12.4	10/31/02	11.0	8.0	9.5	10/31/03	11.8	10.6	11.1

APPENDIX E, Table 6 (continued). Butte Creek water temperatures (Celsius) at Covered Bridge (USGS Gauge #113900000, Butte Creek near Chico) for period May 1 through December 31, 2001-2003.

DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN	DATE	MAX	MIN	MEAN
11/01/01	13.1	10.5	11.8	11/01/02	10.0	7.2	8.7	11/01/03	10.8	8.8	9.9
11/02/01	12.8	10.1	11.5	11/02/02	9.6	6.7	8.2	11/02/03	9.7	8.3	9.0
11/03/01	12.7	9.8	11.3	11/03/02	9.7	6.8	8.3	11/03/03	9.5	8.0	8.8
11/04/01	12.8	10.0	11.4	11/04/02	9.4	6.4	8.0	11/04/03	8.9	6.7	7.9
11/05/01	12.7	10.0	11.3	11/05/02	9.4	6.4	8.0	11/05/03	9.8	8.0	8.8
11/06/01	12.3	10.2	11.2	11/06/02	9.3	6.8	8.2	11/06/03	9.3	7.5	8.4
11/07/01	11.7	9.1	10.5	11/07/02	10.0	8.8	9.3	11/07/03	9.8	8.7	9.2
11/08/01	11.5	8.7	10.1	11/08/02	11.0	9.8	10.3	11/08/03	10.7	9.1	9.8
11/09/01	11.3	9.0	10.2	11/09/02	10.6	9.6	10.0	11/09/03	11.2	9.6	10.3
11/10/01	11.6	9.4	10.6	11/10/02	10.6	9.5	9.9	11/10/03	10.7	8.8	9.8
11/11/01	12.2	10.8	11.5	11/11/02	11.0	9.0	9.8	11/11/03	10.1	8.0	9.1
11/12/01	12.1	11.3	11.7	11/12/02	10.5	8.8	9.7	11/12/03	10.1	7.8	9.0
11/13/01	11.6	11.0	11.3	11/13/02	11.2	9.0	10.1	11/13/03	10.2	8.0	9.1
11/14/01	12.5	10.7	11.4	11/14/02	11.0	8.4	9.7	11/14/03	9.6	8.8	9.2
11/15/01	12.4	10.7	11.4	11/15/02	10.1	7.7	8.9	11/15/03	9.8	8.9	9.3
11/16/01	11.5	10.3	11.0	11/16/02	9.5	7.4	8.4	11/16/03	9.4	8.2	8.9
11/17/01	12.0	10.6	11.2	11/17/02	9.7	7.4	8.5	11/17/03	9.8	8.8	9.1
11/18/01	11.1	9.4	10.4	11/18/02	9.2	7.0	8.2	11/18/03	9.7	7.6	8.7
11/19/01	11.2	9.7	10.5	11/19/02	9.5	7.0	8.3	11/19/03	10.0	8.0	8.9
11/20/01	11.3	10.6	10.9	11/20/02	10.2	7.7	9.0	11/20/03	10.2	8.7	9.4
11/21/01	11.5	11.0	11.1	11/21/02	10.5	8.3	9.4	11/21/03	9.1	7.3	8.2
11/22/01	11.8	10.1	11.1	11/22/02	10.5	8.6	9.6	11/22/03	7.5	5.8	6.7
11/23/01	10.0	9.0	9.5	11/23/02	10.3	9.2	9.8	11/23/03	6.8	4.9	5.9
11/24/01	11.0	9.0	9.9	11/24/02	10.0	9.4	9.8	11/24/03	6.5	4.7	5.7
11/25/01	9.6	7.9	8.6	11/25/02	9.7	7.7	8.8	11/25/03	6.4	4.5	5.5
11/26/01	8.7	6.9	7.6	11/26/02	9.3	7.0	8.1	11/26/03	6.6	4.7	5.7
11/27/01	7.3	5.4	6.3	11/27/02	9.3	6.6	8.1	11/27/03	6.3	4.6	5.5
11/28/01	6.8	6.3	6.5	11/28/02	9.0	6.8	8.0	11/28/03	7.0	5.7	6.3
11/29/01	7.5	6.4	7.0	11/29/02	8.5	6.2	7.4	11/29/03	7.6	6.8	7.1
11/30/01	7.0	6.4	6.7	11/30/02	8.1	6.0	7.2	11/30/03	8.3	7.6	7.9
12/01/01	8.7	6.7	7.7	12/01/02	8.3	6.1	7.2	12/01/03	8.8	8.2	8.5
12/02/01	9.5	8.7	9.1	12/02/02	8.2	6.1	7.2	12/02/03	9.8	8.7	9.1
12/03/01	9.0	7.9	8.5	12/03/02	8.0	5.7	6.9	12/03/03	9.7	8.2	9.0
12/04/01	7.7	6.4	7.1	12/04/02	8.9	6.9	7.7	12/04/03	8.9	8.3	8.6
12/05/01	7.3	6.8	7.1	12/05/02	8.5	6.5	7.5	12/05/03	9.3	8.8	9.1
12/06/01	8.6	6.9	7.8	12/06/02	8.6	6.7	7.7	12/06/03	10.0	9.1	9.4
12/07/01	8.4	7.2	7.8	12/07/02	8.3	6.2	7.3	12/07/03	10.2	8.5	9.7
12/08/01	7.9	6.8	7.4	12/08/02	8.0	5.9	7.0	12/08/03	8.3	6.7	7.6
12/09/01	8.3	6.7	7.5	12/09/02	7.7	6.4	7.1	12/09/03	6.8	6.3	6.6
12/10/01	7.4	5.7	6.3	12/10/02	8.5	7.7	8.1	12/10/03	8.0	6.7	7.5
12/11/01	6.5	4.7	5.5	12/11/02	8.8	6.9	7.8	12/11/03	7.5	6.7	7.0
12/12/01	6.3	4.5	5.4	12/12/02	8.3	6.3	7.4	12/12/03	7.0	6.6	6.8
12/13/01	6.8	5.3	6.0	12/13/02	9.8	8.1	8.7	12/13/03	8.0	6.9	7.4
12/14/01	7.8	6.1	7.1	12/14/02	10.8	9.6	10.4	12/14/03	8.7	7.6	8.2
12/15/01	6.4	4.9	5.7	12/15/02	9.5	9.0	9.1	12/15/03	nr	nr	nr
12/16/01	6.4	5.4	6.0	12/16/02	9.8	9.3	9.6	12/16/03	nr	nr	nr
12/17/01	7.7	6.3	7.2	12/17/02	9.3	8.0	8.7	12/17/03	nr	nr	nr
12/18/01	8.1	7.7	7.9	12/18/02	8.1	7.0	7.5	12/18/03	nr	nr	nr
12/19/01	8.5	7.9	8.1	12/19/02	7.0	6.6	6.7	12/19/03	nr	nr	nr
12/20/01	8.2	7.6	8.0	12/20/02	7.4	6.4	6.9	12/20/03	nr	nr	nr
12/21/01	8.0	7.2	7.6	12/21/02	8.7	7.3	8.1	12/21/03	nr	nr	nr
12/22/01	8.2	7.7	7.9	12/22/02	7.8	6.6	7.2	12/22/03	nr	nr	nr
12/23/01	8.3	7.1	7.7	12/23/02	7.0	5.7	6.2	12/23/03	nr	nr	nr
12/24/01	7.2	6.2	6.7	12/24/02	6.8	5.6	6.1	12/24/03	nr	nr	nr
12/25/01	7.5	6.4	7.0	12/25/02	6.6	5.7	6.2	12/25/03	nr	nr	nr
12/26/01	8.6	7.3	7.9	12/26/02	7.3	6.1	6.6	12/26/03	nr	nr	nr
12/27/01	8.6	8.0	8.2	12/27/02	8.8	7.4	8.3	12/27/03	nr	nr	nr
12/28/01	8.8	7.8	8.1	12/28/02	9.3	8.1	9.0	12/28/03	nr	nr	nr
12/29/01	9.4	8.8	9.0	12/29/02	8.8	8.0	8.5	12/29/03	nr	nr	nr
12/30/01	10.5	9.0	9.4	12/30/02	8.7	8.2	8.5	12/30/03	nr	nr	nr
12/31/01	nr	nr	nr	12/31/02	nr	nr	nr	12/31/03	nr	nr	nr

## **APPENDIX F**

**TABLES 1 & 2  
PG&E WATER TEMPERATURES AT KEY SITES  
WITHIN DESABLA CENTERVILLE PROJECT (FERC 803)  
JUNE 1 THROUGH SEPTEMBER 30, 2003**

APPENDIX F, Table 1. Water temperature (Celsius) for period June 1, through September 30, 2003 (PG&E preliminary data).

	West Branch Above Philbrook		Philbrook Release		Hendricks Head Dam		Hendricks/Toadtown Canal at BW12		DeSabla Forebay	
DAY	MAX	MEAN	MAX	MEAN	MAX	MEAN	MAX	MEAN	MAX	MEAN
6/1	nr	nr	nr	nr	nr	nr	12.2	10.4	nr	nr
6/2	nr	nr	nr	nr	nr	nr	12.6	10.8	nr	nr
6/3	nr	nr	nr	nr	nr	nr	13.1	11.3	nr	nr
6/4	nr	nr	nr	nr	nr	nr	13.3	11.6	nr	nr
6/5	nr	nr	nr	nr	nr	nr	13.5	11.9	nr	nr
6/6	nr	nr	nr	nr	nr	nr	13.9	12.1	nr	nr
6/7	nr	nr	nr	nr	nr	nr	14.4	12.6	nr	nr
6/8	nr	nr	nr	nr	nr	nr	14.7	13.2	nr	nr
6/9	nr	nr	nr	nr	nr	nr	14.5	13.3	nr	nr
6/10	nr	nr	nr	nr	nr	nr	13.8	12.7	nr	nr
6/11	Thermograph installed		Thermograph installed		Thermograph installed		13.2	12.1	Thermograph installed	
6/12	11.4	8.8	5.4	5.1	13.2	11.6	13.7	12.4	13.7	12.2
6/13	11.7	8.9	5.5	5.1	13.3	11.8	13.7	12.5	13.7	12.5
6/14	12.0	8.7	5.6	5.1	13.4	11.5	13.7	12.4	13.7	12.1
6/15	12.5	9.1	5.8	5.2	14.0	12.2	13.7	12.6	14.4	12.7
6/16	13.1	9.7	6.0	5.4	14.8	12.9	14.4	13.2	15.3	13.4
6/17	13.7	10.3	6.3	5.5	15.5	13.7	15.2	14.2	16.0	14.4
6/18	12.1	9.9	5.6	5.4	14.4	13.5	15.9	14.8	15.6	14.3
6/19	12.1	9.2	6.2	5.3	13.9	12.6	14.8	13.8	14.5	13.4
6/20	11.1	9.2	5.9	5.3	13.7	12.6	14.3	13.5	14.5	13.4
6/21	10.5	8.5	6.0	5.3	13.1	11.9	14.4	13.1	13.7	12.6
6/22	11.3	8.5	5.9	5.3	13.1	11.7	13.6	12.5	13.5	12.2
6/23	9.7	7.6	6.0	5.2	12.5	11.1	13.5	12.3	12.9	11.8
6/24	11.6	8.1	6.5	5.4	12.7	10.9	12.9	11.5	13.1	11.3
6/25	13.1	9.2	6.5	5.6	13.7	11.9	13.1	12.1	14.2	12.5
6/26	14.3	10.9	6.7	5.7	14.6	12.9	14.1	13.2	15.1	13.4
6/27	15.0	11.5	6.9	5.8	15.5	13.8	15.1	14.1	16.0	14.4
6/28	15.5	12.0	7.1	6.0	16.2	14.5	16.0	15.0	16.6	15.1
6/29	14.7	11.7	6.7	5.8	15.5	14.3	16.6	15.3	16.1	14.9
6/30	14.4	11.2	6.7	5.7	15.0	13.6	15.8	14.6	15.2	14.1
7/1	14.1	10.9	6.7	5.7	14.6	13.2	15.2	14.1	14.8	13.7
7/2	14.1	10.9	6.7	5.7	14.5	13.0	14.8	13.8	14.7	13.4
7/3	14.2	10.9	6.7	5.8	14.5	13.0	14.7	13.6	14.7	13.4
7/4	14.6	11.0	6.8	5.9	14.9	13.4	14.8	13.8	15.2	13.8
7/5	15.0	11.6	7.0	6.0	15.6	14.0	15.3	14.4	15.9	14.5
7/6	15.1	11.7	7.2	6.0	15.7	14.3	15.9	14.9	16.2	14.8
7/7	15.0	11.8	7.0	6.0	15.8	14.5	16.1	15.1	16.3	15.0
7/8	14.8	11.5	6.9	6.0	15.4	14.0	16.3	14.9	15.9	14.5
7/9	15.3	11.6	7.3	6.0	15.7	14.1	15.8	14.7	16.2	14.6
7/10	15.3	11.9	6.1	5.8	16.2	14.7	16.1	15.0	16.8	15.2
7/11	15.5	12.0	6.1	5.9	15.8	14.4	16.7	15.5	16.3	15.1
7/12	15.6	12.3	6.1	6.0	15.9	14.6	16.2	15.3	16.4	15.2
7/13	15.3	12.3	6.2	6.0	15.7	14.5	16.3	15.4	16.3	15.2
7/14	15.5	12.1	6.2	6.0	15.6	14.3	16.2	15.1	16.0	14.8
7/15	15.6	12.4	6.2	6.1	15.9	14.6	16.1	15.3	16.4	15.1
7/16	15.4	12.1	6.4	6.1	15.7	14.5	16.4	15.4	16.3	15.0
7/17	15.6	12.1	6.5	6.2	15.6	14.3	16.3	15.2	16.0	14.8
7/18	15.9	12.5	7.1	6.5	16.1	14.7	16.2	15.3	Thermograph failed	
7/19	15.8	12.7	7.3	6.5	16.9	15.4	16.7	15.8	nr	nr
7/20	15.9	13.1	7.5	6.6	17.6	16.2	17.8	16.7	nr	nr
7/21	16.8	13.6	7.6	6.7	18.5	17.1	18.3	17.5	nr	nr
7/22	17.0	13.8	7.7	6.8	18.9	17.5	19.4	18.2	nr	nr
7/23	15.5	13.7	7.5	6.8	18.8	17.9	19.8	18.8	nr	nr
7/24	15.9	13.6	7.5	6.8	18.5	17.4	19.9	18.7	nr	nr
7/25	16.0	13.2	7.7	6.8	18.3	17.1	19.5	18.1	nr	nr
7/26	15.9	13.0	7.6	6.8	18.0	16.7	19.3	17.8	nr	nr
7/27	15.8	12.7	7.9	6.8	17.8	16.4	19.1	17.5	nr	nr
7/28	16.2	13.1	8.0	7.0	18.2	16.6	18.9	17.4	nr	nr
7/29	16.0	13.2	7.7	6.8	18.6	17.2	19.3	18.0	nr	nr
7/30	16.3	13.4	7.0	6.7	18.5	17.3	19.8	18.5	nr	nr
7/31	15.2	13.1	7.0	6.7	17.6	16.9	19.5	18.3	nr	nr

APPENDIX F, Table 1 (continued). Water temperature (Celsius) for period June 1, through September 30, 2003 (PG&E preliminary data).

	West Branch Above Philbrook		Philbrook Release		Hendricks Head Dam		Hendricks/Toadtown Canal at BW12		DeSabla Forebay Inflow	
DAY	MAX	MEAN	MAX	MEAN	MAX	MEAN	MAX	MEAN	MAX	MEAN
8/1	13.8	12.4	7.1	6.8	16.7	16.2	18.7	17.6	nr	nr
8/2	12.1	11.4	7.0	6.8	16.1	15.3	17.8	17.0	nr	nr
8/3	13.1	11.0	7.0	6.8	16.0	14.7	16.3	15.5	nr	nr
8/4	13.4	10.8	7.2	7.0	15.9	14.7	16.9	15.7	nr	nr
8/5	12.2	9.7	7.3	7.1	15.9	14.8	17.1	15.7	nr	nr
8/6	11.7	9.1	7.5	7.2	14.5	13.7	16.8	15.6	nr	nr
8/7	11.4	8.9	7.7	7.4	14.3	13.2	15.6	14.3	nr	nr
8/8	11.4	8.7	7.8	7.5	14.1	13.0	15.2	14.0	nr	nr
8/9	11.4	8.7	8.1	7.7	14.1	12.9	15.1	13.8	nr	nr
8/10	11.5	8.8	8.3	8.0	14.2	13.1	15.0	14.0	nr	nr
8/11	11.1	8.6	8.5	8.2	13.8	12.8	15.1	13.9	nr	nr
8/12	10.7	8.0	8.7	8.4	13.2	12.3	14.7	13.5	nr	nr
8/13	10.8	8.1	9.3	8.7	13.4	12.2	14.2	13.1	nr	nr
8/14	11.0	8.4	9.6	9.1	13.9	12.7	14.2	13.3	nr	nr
8/15	11.2	8.7	9.7	9.4	14.0	12.9	14.7	13.8	Thermograph reinstalled	
8/16	10.8	8.1	10.1	9.7	13.4	12.4	14.7	13.6	14.5	13.4
8/17	11.1	8.5	10.6	10.2	14.0	12.8	14.2	13.4	15.1	13.7
8/18	11.4	8.8	11.1	10.6	14.6	13.4	15.3	14.7	15.7	14.4
8/19	11.4	9.1	11.6	11.1	14.9	13.9	15.8	14.8	16.1	14.9
8/20	11.3	8.8	12.3	11.6	14.9	13.8	15.7	14.7	16.0	14.8
8/21	9.2	8.2	12.8	12.3	14.4	13.6	15.1	14.5	15.2	14.7
8/22	8.6	8.0	13.4	12.9	13.8	13.5	14.4	14.3	14.4	14.2
8/23	10.6	8.2	14.5	13.8	14.5	13.3	14.9	14.0	15.0	13.9
8/24	10.6	8.2	15.5	14.8	14.7	13.6	15.2	14.4	15.3	14.2
8/25	10.6	8.2	16.5	15.9	15.0	13.8	15.4	14.6	15.5	14.4
8/26	10.8	8.5	17.5	16.9	15.5	14.3	15.9	15.0	16.0	14.8
8/27	10.5	8.4	17.8	17.5	15.5	14.6	16.1	15.3	15.9	15.1
8/28	10.2	8.0	18.2	17.9	14.9	14.0	15.3	14.7	15.2	14.3
8/29	10.1	7.8	18.5	18.2	14.8	13.6	15.2	14.2	14.9	13.8
8/30	10.6	8.2	18.8	18.4	15.6	14.3	15.8	14.9	15.6	14.4
8/31	9.6	8.0	18.5	18.4	15.5	14.6	16.0	15.3	15.8	14.9
9/1	10.5	8.3	nr	nr	15.9	14.9	16.5	15.6	16.3	15.2
9/2	10.6	8.5	nr	nr	16.2	15.2	16.8	15.9	16.6	15.5
9/3	9.3	8.2	nr	nr	15.7	15.2	16.4	15.9	16.0	15.4
9/4	10.5	8.5	nr	nr	16.6	15.4	17.1	16.2	16.6	15.6
9/5	10.7	8.6	nr	nr	16.6	15.8	17.3	16.6	17.0	16.1
9/6	10.1	8.0	nr	nr	15.6	14.8	16.4	15.5	16.0	15.1
9/7	8.1	7.1	nr	nr	14.6	13.5	15.2	14.2	14.7	13.6
9/8	8.4	7.2	nr	nr	14.2	13.6	14.8	14.1	14.2	13.4
9/9	7.2	6.6	nr	nr	13.5	12.8	14.0	13.4	13.3	12.7
9/10	8.8	6.8	nr	nr	13.6	12.5	13.9	12.9	13.3	12.2
9/11	9.7	7.7	nr	nr	14.5	13.2	14.8	13.8	14.4	13.1
9/12	9.6	7.8	nr	nr	14.7	13.8	15.2	14.5	14.9	13.9
9/13	9.3	7.7	nr	nr	14.5	13.8	15.2	14.5	14.9	14.0
9/14	9.2	7.5	nr	nr	14.2	13.3	14.8	14.1	14.5	13.6
9/15	9.3	7.4	nr	nr	13.9	13.2	14.4	14.0	14.2	13.5
9/16	8.3	7.0	nr	nr	13.3	12.5	13.9	13.3	13.5	12.8
9/17	8.0	6.4	nr	nr	12.5	11.8	13.1	12.5	12.6	11.9
9/18	8.4	6.7	nr	nr	12.2	11.2	12.9	11.9	12.5	11.3
9/19	8.4	6.6	nr	nr	12.4	11.4	13.4	12.1	12.9	11.6
9/20	8.7	6.8	nr	nr	12.5	11.5	13.8	12.6	13.4	12.0
9/21	8.8	7.1	nr	nr	12.8	11.7	14.0	12.9	13.7	12.5
9/22	8.9	7.2	nr	nr	12.9	11.9	14.3	13.2	14.0	12.7
9/23	8.7	7.1	nr	nr	12.9	12.0	14.3	13.2	14.0	12.8
9/24	8.8	7.2	nr	nr	13.1	12.1	14.4	13.4	14.1	12.9
9/25	9.2	7.6	nr	nr	13.5	12.3	14.7	13.6	14.5	13.2
9/26	8.8	7.3	nr	nr	13.3	12.3	14.7	13.7	14.3	13.2
9/27	8.6	7.2	nr	nr	13	12.0	14.3	13.5	13.9	13.0
9/28	8.4	6.8	nr	nr	12.6	11.7	14.0	13.1	13.4	12.5
9/29	8.3	6.9	nr	nr	12.3	11.5	13.6	12.8	13.0	12.3
9/30	8.0	6.3	nr	nr	11.6	10.7	12.8	11.9	12.2	11.3

APPENDIX F, Table 2. Water temperature (Celsius) for period June 1, through September 30, 2003 (PG&E preliminary data).

	Butte Creek Below Forks of Butte		DeSabla Powerhouse Discharge		Butte Creek Centerville Head Dam		Butte Creek Above Centerville Powerhouse		Centerville Powerhouse Discharge	
DAY	MAX	MEAN	MAX	MEAN	MAX	MEAN	MAX	MEAN	MAX	MEAN
6/1	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
6/2	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
6/3	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
6/4	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
6/5	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
6/6	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
6/7	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
6/8	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
6/9	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
6/10	Thermograph installed		Thermograph installed		Thermograph installed		Thermograph installed		Thermograph installed	
6/11	15.5	14.2	14.5	13.5	15.0	14.1	17.0	15.5	16.6	15.1
6/12	15.5	14.3	14.1	13.4	15.0	14.1	17.0	15.5	16.5	14.9
6/13	15.5	14.4	14.2	13.7	15.1	14.3	17.1	15.6	16.4	15.1
6/14	15.4	14.0	14.1	13.4	14.9	13.9	17.2	15.5	16.6	14.9
6/15	16.0	14.4	14.6	13.7	15.5	14.2	17.7	15.7	17.1	15.2
6/16	16.9	15.1	15.5	14.4	16.2	14.9	18.5	16.4	17.8	15.9
6/17	17.9	16.3	16.3	15.4	17.2	16.0	19.0	17.3	19.0	17.0
6/18	17.3	16.5	16.4	15.8	16.8	16.3	18.7	17.2	18.6	17.3
6/19	17.0	15.8	15.9	14.9	16.3	15.6	18.8	16.7	18.0	16.5
6/20	17.2	15.7	15.3	14.7	16.5	15.4	18.7	16.9	17.9	16.3
6/21	16.3	14.9	15.1	14.1	15.6	14.7	17.9	16.2	17.1	15.6
6/22	15.9	14.4	14.3	13.6	15.2	14.2	17.7	15.9	16.7	15.2
6/23	15.3	13.9	14.1	13.2	14.6	13.7	17.1	15.4	16.0	14.6
6/24	15.1	13.5	13.3	12.4	14.3	13.2	16.8	14.9	15.7	14.1
6/25	16.0	14.1	14.3	13.2	15.2	13.8	17.8	15.4	16.6	14.7
6/26	17.0	15.0	15.4	14.3	16.3	14.8	18.8	16.4	17.6	15.7
6/27	18.0	16.0	16.4	15.3	17.2	15.8	19.8	17.4	18.6	16.7
6/28	18.6	16.8	17.2	16.2	17.8	16.6	20.4	18.2	19.2	17.5
6/29	17.9	16.6	17.1	16.4	17.5	16.5	20.1	18.1	18.8	17.4
6/30	17.3	15.8	16.7	15.7	16.9	15.8	19.6	17.6	18.2	16.8
7/1	16.7	15.2	16.0	15.1	16.3	15.3	19.0	17.0	17.6	16.1
7/2	16.4	14.9	15.6	14.8	15.9	14.9	18.8	16.7	17.2	15.8
7/3	16.4	14.7	15.4	14.7	15.9	14.8	18.8	16.6	17.2	15.6
7/4	17.0	15.1	15.8	14.9	16.4	15.1	19.3	16.9	17.7	16.0
7/5	17.6	15.7	16.5	15.6	17.0	15.7	19.9	17.5	18.4	16.6
7/6	17.9	16.2	16.7	16.0	17.3	16.2	20.2	17.9	18.6	17.0
7/7	17.9	16.5	17.1	16.4	17.5	16.5	20.4	18.3	18.9	17.3
7/8	17.5	16.0	16.9	16.0	17.3	16.1	20.7	18.2	17.6	16.7
7/9	17.6	15.9	16.6	16.0	17.2	16.1	21.1	18.5	17.7	16.7
7/10	18.1	16.4	17.3	16.4	17.7	16.5	21.7	18.9	18.2	17.1
7/11	18.4	16.8	17.3	16.6	17.8	16.8	21.8	18.9	18.5	17.4
7/12	18.6	17.1	17.3	16.6	18.0	17.0	21.9	19.5	18.7	17.6
7/13	18.6	17.3	17.3	16.7	17.9	17.1	22.0	19.7	18.7	17.7
7/14	18.4	17.0	17.1	16.4	17.8	16.8	21.8	19.5	18.5	17.5
7/15	18.6	17.1	17.2	16.5	18.0	17.0	22.2	19.8	18.5	17.5
7/16	18.6	17.2	17.2	16.6	18.0	17.0	22.6	20.1	18.5	17.6
7/17	18.3	16.9	17.1	16.4	17.8	16.9	22.8	20.4	18.2	17.4
7/18	18.4	17.2	17.7	16.7	18.0	17.1	23.1	20.6	18.9	17.7
7/19	20.0	18.7	18.0	17.3	18.4	17.7	23.0	20.9	19.5	18.3
7/20	20.8	19.5	18.5	17.6	19.0	18.1	23.5	21.3	20.2	18.8
7/21	22.0	20.7	19.5	18.6	20.1	19.2	24.6	22.3	21.4	19.8
7/22	22.6	21.3	20.1	19.2	20.6	19.8	25.2	22.9	21.9	20.4
7/23	22.5	21.6	20.3	19.7	20.8	20.3	25.2	23.4	22.1	20.9
7/24	22.4	21.4	20.1	19.3	20.5	19.9	25.1	23.3	21.9	20.7
7/25	21.8	21.0	19.5	18.9	20.1	19.5	24.8	23.0	21.2	20.2
7/26	21.5	20.4	19.2	18.5	19.7	19.1	24.8	22.5	21.2	19.7
7/27	21.2	20.0	19.1	18.2	19.4	18.7	24.7	22.4	21.0	19.5
7/28	21.6	20.2	19.1	18.2	19.7	18.8	24.7	22.4	21.2	19.6
7/29	22.1	20.9	19.7	18.8	20.2	19.5	25.1	22.9	21.8	20.2
7/30	22.3	21.3	20.0	19.3	20.4	19.9	25.1	23.2	21.7	20.5
7/31	21.5	20.8	19.7	19.0	20.1	19.5	24.3	22.6	21.1	20.1

APPENDIX F, Table 2 (continued). Water temperature (Celsius) for period June 1, through September 30, 2003 (PG&E preliminary data).

	Butte Creek Below Forks of Butte		DeSabla Powerhouse Discharge		Butte Creek Centerville Head Dam		Butte Creek Above Centerville Powerhouse		Centerville Powerhouse Discharge	
DAY	MAX	MEAN	MAX	MEAN	MAX	MEAN	MAX	MEAN	MAX	MEAN
8/1	20.7	20.3	19.1	18.3	19.6	18.8	22.9	22.0	19.8	19.3
8/2	20.5	19.9	18.2	17.4	18.8	18.1	21.9	21.3	19.1	18.6
8/3	20.3	19.1	17.1	16.2	17.8	17.1	23.8	21.4	19.1	17.8
8/4	20.2	19.2	17.3	16.5	18.0	17.3	23.5	21.3	19.2	17.9
8/5	19.6	18.8	17.2	16.7	17.8	17.3	nr	21.2	19.1	17.8
8/6	18.9	18.0	16.8	16.0	17.4	16.6	nr	20.6	18.2	17.2
8/7	18.4	17.4	16.0	15.3	16.6	15.9	21.9	19.9	17.7	16.5
8/8	18.2	17.1	15.7	15.0	16.2	15.6	21.6	19.5	17.5	16.1
8/9	18.2	17.0	15.7	14.9	16.2	15.5	21.5	19.4	17.6	16.1
8/10	18.3	17.1	15.9	15.1	16.3	15.7	21.6	19.4	17.8	16.3
8/11	18.1	17.0	15.6	15.1	16.1	15.6	21.4	19.3	17.5	16.1
8/12	17.6	16.5	15.2	14.5	15.9	15.1	21.1	18.9	17.1	15.7
8/13	17.6	16.4	15.0	14.2	15.6	14.8	20.8	18.7	16.9	15.4
8/14	17.9	16.7	15.3	14.5	15.8	15.1	20.9	18.8	17.1	15.7
8/15	17.8	16.7	15.5	14.8	15.9	15.4	20.9	18.8	17.2	15.9
8/16	17.5	16.3	15.2	14.5	15.7	15.0	20.7	18.6	17.0	15.6
8/17	17.9	16.6	15.4	14.5	15.9	15.1	20.9	18.8	17.2	15.7
8/18	18.4	17.1	16.0	15.1	16.5	15.7	21.3	19.2	17.9	16.3
8/19	18.7	17.6	16.5	15.7	17.0	16.3	21.6	19.6	18.3	16.8
8/20	18.7	17.6	16.4	15.8	17.0	16.3	21.6	19.6	18.3	16.9
8/21	18.3	17.7	16.3	15.7	16.8	16.2	20.4	19.4	17.2	16.7
8/22	18.0	17.6	17.6	15.6	16.2	15.9	19.4	18.8	17.0	16.3
8/23	18.3	17.2	15.3	14.5	16.1	15.3	21.1	19.0	17.0	15.8
8/24	18.5	17.4	15.7	15.0	16.3	15.6	21.4	19.5	17.5	16.1
8/25	18.3	17.2	15.9	15.2	16.4	15.7	21.4	19.5	17.6	16.3
8/26	18.7	17.5	16.2	15.5	16.7	16.0	21.4	19.6	17.8	16.6
8/27	18.7	17.7	16.5	15.9	16.9	16.4	21.6	19.8	18.2	16.9
8/28	17.9	17.0	16.2	15.5	16.6	15.9	21.0	19.3	17.7	16.4
8/29	17.4	16.4	15.6	14.8	16.0	15.3	20.6	18.7	17.0	15.8
8/30	17.8	16.7	15.8	15.0	16.1	15.5	20.7	18.9	17.2	16.0
8/31	18.1	17.0	16.1	15.6	16.5	15.9	20.7	19.1	17.6	16.4
9/1	18.5	17.4	16.6	15.9	17.0	16.3	21.4	19.6	18.1	16.9
9/2	18.8	17.8	17.0	16.3	17.4	16.7	21.8	20.0	18.6	17.2
9/3	18.2	17.6	16.8	16.3	17.2	16.7	20.3	19.5	17.8	17.2
9/4	18.9	18.0	16.9	16.2	17.4	16.7	21.7	19.9	18.5	17.2
9/5	19.3	18.4	17.5	16.8	17.8	17.3	21.9	20.3	19.0	17.7
9/6	18.3	17.6	17.3	16.4	17.6	16.7	21.2	19.7	18.2	17.2
9/7	17.3	16.3	16.1	15.0	16.5	15.4	19.2	18.4	16.6	15.8
9/8	16.5	15.9	14.6	14.2	15.0	14.7	19.1	17.9	15.9	15.1
9/9	15.6	15.1	14.3	13.6	14.7	14.1	18.1	17.2	15.2	14.5
9/10	15.7	14.7	13.4	12.8	13.9	13.4	18.7	17.0	15.0	13.8
9/11	16.0	14.9	14.3	13.4	14.7	13.8	19.0	17.2	15.8	14.3
9/12	16.5	15.5	15.1	14.4	15.3	14.7	19.5	17.7	16.7	15.2
9/13	16.5	15.7	15.1	14.7	15.4	15.0	19.5	17.9	16.7	15.4
9/14	16.2	15.4	15.1	14.6	15.2	14.8	19.4	17.8	16.3	15.3
9/15	16.4	15.5	14.9	14.4	15.1	14.7	19.1	17.6	16.3	15.2
9/16	15.7	15.1	14.7	13.9	14.9	14.3	18.4	17.2	15.5	14.7
9/17	15.1	14.5	13.8	13.0	14.2	13.5	18.1	16.6	15.1	14.0
9/18	14.4	13.6	13.0	12.3	13.4	12.8	17.6	16.0	14.7	13.3
9/19	14.5	13.6	12.9	12.4	13.4	12.9	17.6	15.9	15.1	13.5
9/20	15.2	14.1	13.2	12.7	13.9	13.3	18.2	16.3	15.6	14.0
9/21	15.5	14.5	13.8	13.2	14.3	13.7	18.4	16.7	16.1	14.4
9/22	15.8	14.8	14.1	13.6	14.7	14.1	18.7	16.9	16.5	14.8
9/23	15.9	15.0	14.2	13.8	14.8	14.3	18.7	17.1	16.5	15.1
9/24	16.2	15.3	14.3	13.9	15.0	14.5	19.0	17.3	16.7	15.2
9/25	16.4	15.5	14.5	14.1	15.1	14.7	18.9	17.4	16.8	15.3
9/26	16.0	15.2	14.7	14.3	15.1	14.7	18.8	17.3	16.8	15.3
9/27	16.1	15.4	14.7	14.2	15.1	14.7	18.8	17.3	16.8	15.4
9/28	15.7	15.0	14.5	13.9	14.9	14.4	18.6	17.2	16.4	15.1
9/29	15.6	14.9	14.1	13.6	14.6	14.2	18.2	16.9	16.0	14.8
9/30	14.7	13.9	13.8	12.9	14.0	13.4	17.7	16.2	15.4	14.0

## **APPENDIX G**

**TABLES 1-10  
FLOWS AT KEY SITES WITHIN  
PG&E DESABLA CENTERVILLE PROJECT  
FERC 803**

**APPENDIX G, Table 1.** Average daily flows (cfs) at PG&E Butte Head Dam for period June 1, through September 30, 1998-2003. USGS gauge #11389720, Latitude 39°58'53", Longitude 121°35'15" NAD27, Drainage area 61.4 square miles, Gage datum 2,840, feet above sea level NGVD29.

DAY	YEAR						DAY	YEAR					
	1998	1999	2000	2001	2002	2003		199	1999	2000	2001	2002	2003
6/1	nr	nr	nr	19	23	nr	8/1	30	20	19	10	21	21
6/2	nr	nr	nr	19	21	nr	8/2	29	20	19	9.9	21	21
6/3	nr	nr	nr	19	19	nr	8/3	25	20	19	9.9	21	21
6/4	nr	nr	nr	14	19	nr	8/4	21	20	19	10	21	21
6/5	nr	nr	nr	12	19	nr	8/5	20	20	19	9.9	21	21
6/6	nr	nr	59	11	19	nr	8/6	20	20	19	9.9	21	20
6/7	nr	nr	56	11	19	nr	8/7	20	20	19	9.9	21	20
6/8	nr	nr	nr	9.8	19	nr	8/8	19	20	19	9.9	21	21
6/9	nr	nr	60	9.9	18	nr	8/9	19	20	19	9.7	21	22
6/10	nr	nr	54	10	19	nr	8/10	18	20	19	10	21	22
6/11	nr	nr	50	10	19	nr	8/11	18	21	19	10	21	22
6/12	nr	nr	47	9.9	19	nr	8/12	19	21	19	10	21	22
6/13	nr	nr	44	9.8	19	nr	8/13	19	21	19	10	21	22
6/14	nr	nr	35	9.8	19	nr	8/14	19	21	19	10	21	22
6/15	nr	nr	29	9.7	19	nr	8/15	19	21	19	9	21	21
6/16	nr	nr	27	9.6	19	nr	8/16	19	20	19	8.6	21	21
6/17	nr	nr	25	9.6	20	nr	8/17	19	20	19	8.8	21	21
6/18	nr	nr	24	9.5	20	nr	8/18	19	20	19	8.8	22	21
6/19	nr	nr	23	9.3	20	nr	8/19	19	20	19	8.8	22	21
6/20	nr	nr	21	9.3	20	nr	8/20	19	20	19	8.8	22	21
6/21	nr	nr	20	9.9	19	nr	8/21	19	20	19	8.8	22	21
6/22	nr	nr	21	9.9	20	nr	8/22	19	20	19	8.8	22	22
6/23	nr	34	21	9.8	20	nr	8/23	19	20	19	8.8	22	21
6/24	nr	29	20	9.8	20	nr	8/24	19	21	19	8.8	22	21
6/25	nr	27	20	9.9	20	nr	8/25	19	21	19	8.8	22	21
6/26	nr	26	20	10	20	nr	8/26	19	20	19	8.8	22	20
6/27	nr	25	21	10	20	nr	8/27	19	20	19	8.8	21	20
6/28	nr	24	21	10	20	nr	8/28	19	20	19	8.8	21	20
6/29	nr	21	21	9.9	20	nr	8/29	19	20	18	8.8	22	20
6/30	nr	22	21	9.8	20	nr	8/30	19	21	18	8.8	21	20
7/1	nr	22	21	9.8	20	nr	8/31	19	20	18	8.8	22	20
7/2	nr	23	21	9.8	21	nr	9/1	19	21	18	8.8	21	20
7/3	nr	23	21	9.8	21	nr	9/2	19	21	19	8.8	21	20
7/4	nr	23	21	9.8	21	nr	9/3	19	21	19	8.8	21	20
7/5	nr	24	21	9.8	21	nr	9/4	19	21	18	8.8	22	20
7/6	nr	24	21	9.8	21	nr	9/5	19	21	25	8.8	22	20
7/7	nr	23	21	9.8	21	nr	9/6	19	21	55	8.8	22	20
7/8	nr	22	21	9.8	21	nr	9/7	19	21	41	8.8	22	20
7/9	nr	20	21	9.8	21	nr	9/8	19	20	18	8.8	22	20
7/10	nr	20	21	9.8	21	nr	9/9	19	20	18	8.8	22	20
7/11	nr	19	20	9.8	21	nr	9/10	19	20	18	8.8	21	20
7/12	nr	19	20	9.8	21	nr	9/11	19	21	18	8.8	21	20
7/13	nr	19	20	9.8	21	nr	9/12	19	22	19	8.7	21	20
7/14	nr	20	20	9.8	21	nr	9/13	19	22	19	8.7	21	20
7/15	nr	20	20	9.8	21	nr	9/14	19	22	19	8.7	21	20
7/16	nr	20	20	9.8	21	nr	9/15	19	22	19	8.7	21	20
7/17	nr	20	20	9.8	21	nr	9/16	19	22	18	8.7	21	20
7/18	nr	20	20	9.8	21	57	9/17	19	22	18	8.7	21	20
7/19	nr	20	20	9.8	21	30	9/18	19	22	18	8.7	21	20
7/20	nr	20	19	9.8	21	22	9/19	19	22	18	8.7	22	20
7/21	nr	20	19	9.8	21	21	9/20	19	22	18	8.8	22	20
7/22	nr	20	19	9.9	21	21	9/21	19	22	18	8.8	22	20
7/23	nr	20	19	9.8	21	21	9/22	19	22	19	8.8	22	20
7/24	nr	20	19	9.8	21	21	9/23	19	22	19	8.8	22	20
7/25	nr	22	19	9.9	21	21	9/24	19	22	18	8.8	22	20
7/26	39	20	20	9.9	21	21	9/25	19	22	18	9.2	22	20
7/27	36	20	20	9.9	21	21	9/26	20	21	18	8.8	22	20
7/28	34	20	19	10	21	21	9/27	21	21	18	8.8	22	20
7/29	32	20	19	10	21	21	9/28	20	21	18	8.8	22	20
7/30	31	20	19	10	21	21	9/29	19	22	18	8.8	22	20
7/31	31	20	19	10	21	21	9/30	19	22	18	8.8	22	20

APPENDIX G, Table 2. Average daily flows (cfs) at PG&E Hendricks Head Dam for period June 1, through September 30, 1998-2003., USGS gauge #11405200, Latitude 39°56'03", Longitude 121°31'43" Drainage area 46.1 square miles.

DAY	YEAR						DAY	YEAR					
	1998	1999	200	2001	200	2003		199	1999	2000	200	2002	2003
6/1	nr	nr	nr	18	22	nr	8/1	17	19	20	14	17	nr
6/2	nr	nr	100	18	22	nr	8/2	17	19	20	13	17	nr
6/3	nr	nr	90	17	22	nr	8/3	18	19	20	8.8	17	nr
6/4	nr	nr	82	8.1	20	nr	8/4	18	19	19	9.7	17	nr
6/5	nr	nr	76	8.1	19	nr	8/5	19	19	17	9.7	17	nr
6/6	nr	nr	66	8.1	18	nr	8/6	19	19	17	9	17	nr
6/7	nr	nr	61	8.1	18	nr	8/7	18	19	17	8	17	nr
6/8	nr	nr	67	14	18	nr	8/8	17	19	17	8.4	17	nr
6/9	nr	nr	55	14	18	nr	8/9	17	19	17	8	17	nr
6/10	nr	nr	44	14	18	nr	8/10	17	19	17	7.7	17	nr
6/11	nr	nr	35	13	18	nr	8/11	17	19	17	7.7	17	nr
6/12	nr	nr	29	13	18	nr	8/12	17	19	17	7.3	17	nr
6/13	nr	nr	25	12	18	nr	8/13	17	19	17	7.3	17	nr
6/14	nr	nr	21	8.2	17	nr	8/14	17	19	17	8	17	nr
6/15	nr	nr	21	8.7	17	nr	8/15	18	19	17	8.8	17	nr
6/16	nr	nr	20	8	17	nr	8/16	18	19	17	8.7	17	nr
6/17	nr	nr	20	10	17	nr	8/17	18	19	17	8.6	17	nr
6/18	nr	nr	20	9.4	17	nr	8/18	18	19	17	8.3	17	nr
6/19	nr	34	20	8.7	17	nr	8/19	19	19	17	8.3	17	nr
6/20	nr	26	20	8.7	17	nr	8/20	19	19	17	8.3	17	nr
6/21	nr	23	20	8.7	17	nr	8/21	19	20	16	8.3	17	nr
6/22	nr	24	20	8.7	17	nr	8/22	19	20	16	8.3	17	nr
6/23	nr	25	20	8.7	17	nr	8/23	19	20	16	8.3	17	nr
6/24	nr	25	20	8.7	17	nr	8/24	19	20	16	8.3	17	nr
6/25	nr	25	20	8.7	17	nr	8/25	19	20	16	8.3	17	nr
6/26	nr	25	20	8.9	17	nr	8/26	19	20	16	8.3	17	nr
6/27	nr	24	20	9.3	17	nr	8/27	19	20	16	8.3	17	nr
6/28	nr	24	20	9.3	17	nr	8/28	19	20	16	8.3	17	nr
6/29	nr	24	20	9.3	17	nr	8/29	19	20	16	8.3	16	nr
6/30	nr	24	20	9	17	nr	8/30	19	20	16	8.3	15	nr
7/1	nr	23	20	9.3	17	nr	8/31	19	20	16	8.3	15	nr
7/2	nr	24	20	9.3	17	nr	9/1	19	21	16	8.5	15	nr
7/3	nr	24	20	9.3	17	nr	9/2	20	21	16	8.3	15	nr
7/4	nr	24	20	9.5	17	nr	9/3	21	21	16	8.5	15	nr
7/5	nr	24	20	9.7	17	nr	9/4	21	21	16	8.5	15	nr
7/6	nr	24	20	9.7	17	nr	9/5	21	20	16	8.5	15	nr
7/7	nr	23	20	9.7	17	nr	9/6	21	20	16	8.2	15	nr
7/8	nr	23	20	9.7	17	nr	9/7	21	21	16	8.5	15	nr
7/9	nr	23	20	9.4	17	nr	9/8	21	21	16	8.7	15	nr
7/10	nr	23	20	9.3	17	nr	9/9	20	21	16	8.7	15	nr
7/11	nr	23	20	9.3	17	nr	9/10	20	21	16	8.6	13	nr
7/12	nr	23	20	9	17	nr	9/11	20	21	16	8.6	11	nr
7/13	nr	25	20	9	17	nr	9/12	20	22	16	8.6	11	nr
7/14	nr	24	20	9	17	nr	9/13	20	22	17	8.6	11	nr
7/15	nr	24	20	9.1	17	nr	9/14	20	21	17	8.6	11	nr
7/16	nr	23	20	9	17	nr	9/15	20	21	17	8.6	11	nr
7/17	nr	23	20	9	17	nr	9/16	20	21	17	8.6	11	nr
7/18	nr	23	20	11	17	nr	9/17	21	21	17	8.6	13	nr
7/19	nr	23	20	12	17	nr	9/18	21	21	17	8.6	15	nr
7/20	nr	22	20	12	17	nr	9/19	21	22	17	8.6	15	nr
7/21	35	20	20	12	17	nr	9/20	21	21	17	8.6	15	nr
7/22	28	19	20	12	17	nr	9/21	21	21	17	8.6	15	nr
7/23	22	19	20	12	17	nr	9/22	21	21	17	8.6	15	nr
7/24	18	19	20	12	17	nr	9/23	21	21	17	8.6	15	nr
7/25	18	19	20	12	17	nr	9/24	21	21	17	8.6	15	nr
7/26	19	19	19	13	17	nr	9/25	21	21	17	8.8	15	nr
7/27	19	19	18	14	17	nr	9/26	23	20	17	8.6	15	nr
7/28	18	19	19	14	17	nr	9/27	21	20	17	8.6	16	nr
7/29	17	19	21	14	18	nr	9/28	21	20	17	8.6	17	nr
7/30	17	19	21	14	17	nr	9/29	21	20	17	8.6	17	nr
7/31	17	19	21	14	17	nr	9/30	21	21	17	8.6	17	nr

APPENDIX G, Table 3. Average daily flows (cfs) below Forks of Butte Head Dam for period June 1, through September 30, 1998-2003. , USGS gauge #11389740, Latitude 39°54'05", Longitude 121°37'24" NAD27, Drainage area 96.4 square miles, Gage datum 1,900 feet above sea level NGVD29.

DAY	YEAR						DAY	YEAR					
	1998	1999	2000	2001	2002	2003		1998	1999	2000	2001	2002	2003
6/1	nr	48	48	51	48	215	8/1	48	41	39	25	36	43
6/2	nr	48	48	49	48	194	8/2	48	53	39	25	36	46
6/3	nr	48	48	47	54	178	8/3	48	41	39	24	36	47
6/4	nr	48	48	44	59	167	8/4	60	42	38	25	36	45
6/5	nr	48	48	39	55	135	8/5	60	42	38	25	36	45
6/6	nr	48	48	39	53	109	8/6	60	43	38	24	36	44
6/7	nr	48	48	38	51	88	8/7	58	43	38	24	36	44
6/8	nr	48	48	37	50	74	8/8	57	43	38	24	36	43
6/9	nr	48	48	36	50	57	8/9	56	43	38	24	36	44
6/10	nr	48	48	36	49	50	8/10	55	44	39	24	35	43
6/11	nr	48	48	36	47	50	8/11	54	44	39	25	35	42
6/12	nr	48	48	36	46	49	8/12	54	43	39	24	35	42
6/13	nr	48	48	35	46	48	8/13	54	40	38	25	35	42
6/14	nr	48	48	34	46	48	8/14	54	40	38	25	35	42
6/15	nr	48	48	34	46	48	8/15	53	40	38	24	35	41
6/16	nr	48	55	33	45	48	8/16	52	39	38	22	35	41
6/17	nr	48	60	32	45	48	8/17	52	39	37	22	35	41
6/18	nr	48	58	32	44	48	8/18	52	39	38	22	35	41
6/19	nr	48	57	32	44	48	8/19	52	39	38	22	34	41
6/20	nr	48	54	32	44	48	8/20	51	39	38	22	34	40
6/21	nr	48	52	32	44	48	8/21	50	38	38	22	34	41
6/22	nr	48	52	32	44	48	8/22	50	38	38	23	34	44
6/23	nr	48	51	31	43	48	8/23	49	50	38	23	34	44
6/24	nr	54	50	31	43	48	8/24	48	38	37	23	34	42
6/25	nr	52	49	31	43	48	8/25	48	38	37	22	34	41
6/26	nr	nr	49	33	43	48	8/26	48	38	37	22	34	40
6/27	nr	60	49	38	42	48	8/27	47	39	37	22	34	40
6/28	nr	58	49	37	42	48	8/28	47	38	37	22	34	40
6/29	nr	55	49	33	42	48	8/29	46	38	37	22	34	39
6/30	53	54	48	32	42	48	8/30	46	38	37	21	33	39
7/1	48	53	48	31	42	48	8/31	45	38	37	22	33	39
7/2	48	54	47	30	42	48	9/1	45	38	39	22	34	39
7/3	48	54	47	30	41	48	9/2	45	38	42	22	33	39
7/4	48	53	48	30	41	48	9/3	44	38	40	22	33	39
7/5	48	54	47	29	40	48	9/4	45	38	39	22	33	40
7/6	48	53	48	29	40	48	9/5	45	38	43	21	33	40
7/7	48	52	47	28	39	48	9/6	47	38	53	22	33	40
7/8	48	51	46	28	37	48	9/7	47	37	46	21	33	40
7/9	48	48	46	28	38	48	9/8	46	37	36	21	33	41
7/10	48	47	45	28	43	48	9/9	46	37	36	21	34	41
7/11	48	46	45	28	39	48	9/10	46	37	35	21	34	42
7/12	48	46	45	28	36	48	9/11	46	37	35	21	34	40
7/13	48	46	44	28	37	48	9/12	45	38	35	22	33	39
7/14	48	45	44	27	38	48	9/13	44	38	36	22	33	38
7/15	48	45	43	27	38	48	9/14	44	37	36	22	33	37
7/16	48	45	43	27	38	48	9/15	43	37	36	22	33	38
7/17	48	45	43	27	38	48	9/16	44	37	36	22	33	38
7/18	48	44	43	27	37	48	9/17	44	37	35	22	33	38
7/19	48	44	43	27	37	47	9/18	44	37	35	22	33	37
7/20	48	44	42	27	37	45	9/19	44	37	35	22	34	37
7/21	48	44	41	26	38	45	9/20	44	37	34	22	34	37
7/22	48	44	41	26	37	45	9/21	44	37	35	22	33	37
7/23	48	44	41	26	37	45	9/22	43	37	36	22	33	37
7/24	48	44	41	26	37	45	9/23	44	37	36	22	34	37
7/25	48	44	41	26	37	45	9/24	44	37	36	22	33	37
7/26	48	43	41	26	37	45	9/25	44	37	35	28	33	37
7/27	48	43	40	25	37	44	9/26	54	37	35	24	33	37
7/28	48	43	40	25	36	44	9/27	48	36	35	23	33	37
7/29	48	42	40	25	36	44	9/28	48	36	35	23	33	37
7/30	48	42	39	25	36	43	9/29	45	36	35	23	34	37
7/31	48	42	39	26	36	43	9/30	45	36	34	22	34	37

APPENDIX G, Table 4. Average daily flows (cfs) Forks of Butte Powerhouse discharge for period June 1, through September 30, 1998-2003. , USGS gauge #11389740, Latitude 39°54'05", Longitude 121°37'24" NAD27, Drainage area 96.4 square miles, Gage datum 1,900 feet above sea level NGVD29.

DAY	YEAR						DAY	YEAR					
	1998	1999	2000	2001	2002	2003		1998	1999	2000	2001	2002	2003
6/1	250	152	78	0	7	251	8/1	23	0	0	0	0	0
6/2	250	154	72	0	0	252	8/2	20	0	0	0	0	0
6/3	250	146	66	0	0	251	8/3	17	0	0	0	0	0
6/4	250	132	61	0	0	228	8/4	2	0	0	0	0	0
6/5	250	117	57	0	0	251	8/5	0	0	0	0	0	0
6/6	250	110	52	0	0	251	8/6	0	0	0	0	0	0
6/7	250	100	49	0	0	251	8/7	0	0	0	0	0	0
6/8	246	92	67	0	0	250	8/8	0	0	0	0	0	0
6/9	250	85	59	0	0	245	8/9	0	0	0	0	0	0
6/10	250	79	48	0	0	232	8/10	0	0	0	0	0	0
6/11	250	74	40	0	0	214	8/11	0	0	0	0	0	0
6/12	250	69	39	0	0	201	8/12	0	0	0	0	0	0
6/13	250	63	35	0	0	190	8/13	0	0	0	0	0	0
6/14	250	60	26	0	0	178	8/14	0	0	0	0	0	0
6/15	250	56	17	0	0	167	8/15	0	0	0	0	0	0
6/16	250	52	7	0	0	158	8/16	0	0	0	0	0	0
6/17	250	47	0	0	0	150	8/17	0	0	0	0	0	0
6/18	250	42	0	0	0	145	8/18	0	0	0	0	0	0
6/19	250	39	0	0	0	139	8/19	0	0	0	0	0	0
6/20	250	34	0	0	0	135	8/20	0	0	0	0	0	0
6/21	250	32	0	0	0	129	8/21	0	0	0	0	0	0
6/22	250	22	0	0	0	124	8/22	0	0	0	0	0	0
6/23	250	11	0	0	0	120	8/23	0	0	0	0	0	0
6/24	250	10	0	0	0	122	8/24	0	0	0	0	0	0
6/25	250	0	0	0	0	110	8/25	0	0	0	0	0	0
6/26	250	0	0	0	0	104	8/26	0	0	0	0	0	0
6/27	250	0	0	0	0	100	8/27	0	0	0	0	0	0
6/28	249	0	0	0	0	96	8/28	0	0	0	0	0	0
6/29	246	0	0	0	0	92	8/29	0	0	0	0	0	0
6/30	240	0	0	0	0	89	8/30	0	0	0	0	0	0
7/1	227	0	0	0	0	88	8/31	0	0	0	0	0	0
7/2	219	0	0	0	0	86	9/1	0	0	0	0	0	0
7/3	211	0	0	0	0	83	9/2	0	0	0	0	0	0
7/4	200	0	0	0	0	81	9/3	0	0	0	0	0	0
7/5	190	0	0	0	0	79	9/4	0	0	0	0	0	0
7/6	179	0	0	0	0	77	9/5	0	0	0	0	0	0
7/7	171	0	0	0	0	76	9/6	0	0	14	0	0	0
7/8	161	0	0	0	0	73	9/7	0	0	27	0	0	0
7/9	148	0	0	0	0	71	9/8	0	0	0	0	0	0
7/10	138	0	0	0	0	67	9/9	0	0	0	0	0	0
7/11	128	0	0	0	0	63	9/10	0	0	0	0	0	0
7/12	119	0	0	0	0	61	9/11	0	0	0	0	0	0
7/13	115	0	0	0	0	60	9/12	0	0	0	0	0	0
7/14	105	0	0	0	0	65	9/13	0	0	0	0	0	0
7/15	92	0	0	0	0	68	9/14	0	0	0	0	0	0
7/16	85	0	0	0	0	66	9/15	0	0	0	0	0	0
7/17	79	0	0	0	0	63	9/16	0	0	0	0	0	0
7/18	74	0	0	0	0	47	9/17	0	0	0	0	0	0
7/19	70	0	0	0	0	10	9/18	0	0	0	0	0	0
7/20	65	0	0	0	0	0	9/19	0	0	0	0	0	0
7/21	59	0	0	0	0	0	9/20	0	0	0	0	0	0
7/22	55	0	0	0	0	0	9/21	0	0	0	0	0	0
7/23	54	0	0	0	0	0	9/22	0	0	0	0	0	0
7/24	49	0	0	0	0	0	9/23	0	0	0	0	0	0
7/25	43	0	0	0	0	0	9/24	0	0	0	0	0	0
7/26	35	0	0	0	0	0	9/25	0	0	0	0	0	0
7/27	30	0	0	0	0	0	9/26	0	0	0	0	0	0
7/28	29	0	0	0	0	0	9/27	0	0	0	0	0	0
7/29	29	0	0	0	0	0	9/28	0	0	0	0	0	0
7/30	25	0	0	0	0	0	9/29	0	0	0	0	0	0
7/31	24	0	0	0	0	0	9/30	0	0	0	0	0	0

APPENDIX G, Table 5. Average daily flows (cfs) at PG&E DeSabla Powerhouse discharge for period June 1, through September 30, 1998-2003, USGS gauge #11389750, Latitude 39°52'10", Longitude 121°37'51" NAD27.

DAY	YEAR					DAY	YEAR				
	1998	1999	2000	2001	2002		1998	1999	2000	2001	2002
6/1	104	172	174	148	172	118	8/1	168	117	106	98
6/2	97	173	171	150	172	117	8/2	167	108	105	96
6/3	106	173	171	149	172	116	8/3	152	112	85	95
6/4	126	172	170	151	169	117	8/4	158	108	104	95
6/5	97	171	171	157	163	116	8/5	167	107	105	95
6/6	175	171	171	153	153	118	8/6	172	108	105	94
6/7	74	172	171	148	148	118	8/7	168	109	104	95
6/8	106	172	172	142	144	117	8/8	163	108	105	85
6/9	169	173	171	139	144	117	8/9	162	107	105	84
6/10	169	174	171	136	141	116	8/10	167	112	104	85
6/11	169	172	172	134	137	117	8/11	167	123	104	84
6/12	169	172	169	131	133	118	8/12	167	117	104	84
6/13	169	173	168	128	128	117	8/13	167	116	102	84
6/14	169	173	158	131	125	117	8/14	167	115	101	83
6/15	169	172	156	127	123	117	8/15	167	114	102	82
6/16	176	160	152	125	119	116	8/16	167	113	100	82
6/17	169	172	151	120	116	115	8/17	156	112	96	80
6/18	169	172	151	117	115	115	8/18	167	111	99	81
6/19	177	172	144	117	112	115	8/19	167	110	100	80
6/20	169	172	152	114	109	116	8/20	167	114	100	80
6/21	177	172	150	111	107	116	8/21	167	114	101	80
6/22	174	167	150	107	106	114	8/22	130	113	100	81
6/23	172	165	148	106	104	111	8/23	124	108	99	81
6/24	172	165	144	104	103	114	8/24	166	114	100	82
6/25	172	164	144	105	101	103	8/25	124	114	102	80
6/26	172	162	140	117	97	109	8/26	167	113	102	80
6/27	172	160	136	131	95	104	8/27	167	114	103	78
6/28	173	155	130	123	93	101	8/28	118	113	102	78
6/29	172	153	128	118	92	102	8/29	118	114	102	78
6/30	172	149	129	115	91	105	8/30	167	111	103	78
7/1	170	145	128	107	88	100	8/31	114	111	103	78
7/2	172	142	126	105	86	96	9/1	127	110	108	78
7/3	173	139	125	104	84	92	9/2	127	111	118	78
7/4	170	138	121	110	83	89	9/3	125	111	114	78
7/5	169	135	118	108	83	86	9/4	124	110	110	77
7/6	170	132	119	107	81	84	9/5	127	109	107	77
7/7	170	130	118	104	79	81	9/6	132	109	84	74
7/8	168	128	117	104	78	78	9/7	130	109	75	76
7/9	169	127	115	98	84	73	9/8	125	113	103	76
7/10	170	126	113	95	82	76	9/9	114	112	103	76
7/11	170	124	110	102	80	93	9/10	112	111	101	76
7/12	170	122	108	101	79	92	9/11	113	110	101	77
7/13	168	145	98	100	77	90	9/12	110	108	99	78
7/14	161	145	104	99	77	84	9/13	109	108	98	78
7/15	170	142	103	106	74	78	9/14	109	107	100	77
7/16	169	118	102	107	69	77	9/15	107	98	99	78
7/17	164	117	101	106	79	75	9/16	105	109	99	76
7/18	170	116	99	105	79	85	9/17	134	108	98	76
7/19	172	111	98	103	80	100	9/18	127	108	78	75
7/20	174	115	98	102	78	108	9/19	127	108	64	75
7/21	178	116	100	102	74	106	9/20	133	88	64	75
7/22	170	115	99	100	77	104	9/21	124	73	64	66
7/23	170	114	98	100	77	102	9/22	133	76	68	61
7/24	170	109	96	99	75	102	9/23	127	74	69	61
7/25	168	112	97	102	74	101	9/24	135	73	66	61
7/26	170	112	108	101	74	98	9/25	139	72	65	84
7/27	174	122	109	99	73	96	9/26	140	74	65	70
7/28	180	121	109	99	73	94	9/27	162	74	65	66
7/29	180	121	105	95	72	92	9/28	145	72	64	40
7/30	180	119	100	96	76	102	9/29	138	71	61	64
7/31	167	119	100	101	77	102	9/30	136	71	63	44

APPENDIX G, Table 6. Average daily flows (cfs) below PG&E Centerville Head Dam for period June 1, through September 30, 1998-2003, USGS gauge #11389780, Latitude 39°52'01", Longitude 121°37'58" NAD27, Drainage area 101 square miles, Gage datum 1,130 feet above sea level NGVD29.

DAY	YEAR						DAY	YEAR					
	1998	1999	2000	2001	2002	2003		1998	1999	2000	2001	2002	2003
6/1	nr	nr	nr	48	nr	nr	8/1	nr	47	47	46	47	49
6/2	nr	nr	nr	49	nr	nr	8/2	nr	47	47	46	47	44
6/3	nr	nr	nr	50	nr	nr	8/3	nr	51	47	45	47	45
6/4	nr	nr	nr	53	nr	nr	8/4	nr	51	47	45	47	44
6/5	nr	nr	nr	54	nr	nr	8/5	nr	50	47	46	47	44
6/6	nr	nr	nr	52	nr	nr	8/6	nr	50	47	45	47	44
6/7	nr	nr	nr	52	52	nr	8/7	nr	51	47	46	47	44
6/8	nr	nr	nr	50	51	nr	8/8	nr	50	47	47	47	44
6/9	nr	nr	nr	48	49	nr	8/9	nr	50	47	48	47	45
6/10	nr	nr	nr	52	55	nr	8/10	60	51	47	49	47	45
6/11	nr	nr	nr	48	49	nr	8/11	58	52	47	49	47	45
6/12	nr	nr	nr	52	46	nr	8/12	55	52	47	49	47	45
6/13	nr	nr	nr	49	50	nr	8/13	52	51	47	47	47	45
6/14	nr	nr	nr	48	58	nr	8/14	50	51	47	46	47	45
6/15	nr	nr	nr	51	54	nr	8/15	48	51	48	46	47	45
6/16	nr	nr	57	50	54	nr	8/16	47	51	46	47	47	45
6/17	nr	nr	49	52	51	nr	8/17	47	nr	45	46	47	45
6/18	nr	nr	45	50	46	nr	8/18	43	nr	45	47	47	45
6/19	nr	nr	44	48	46	nr	8/19	44	49	45	47	47	45
6/20	nr	nr	49	50	nr	nr	8/20	45	45	45	46	47	45
6/21	nr	nr	45	47	45	nr	8/21	45	45	nr	46	47	46
6/22	nr	nr	44	47	45	nr	8/22	45	45	nr	47	47	50
6/23	nr	nr	44	47	45	nr	8/23	45	45	nr	46	47	43
6/24	nr	nr	43	47	45	nr	8/24	45	45	45	47	47	43
6/25	nr	nr	43	47	46	nr	8/25	44	45	45	48	47	42
6/26	nr	nr	43	47	47	nr	8/26	44	45	45	46	47	43
6/27	nr	nr	43	47	47	nr	8/27	44	45	45	47	47	43
6/28	nr	57	43	48	47	nr	8/28	44	45	45	46	47	43
6/29	nr	58	43	49	46	nr	8/29	44	45	45	46	47	44
6/30	nr	57	44	50	46	nr	8/30	44	45	45	50	47	43
7/1	nr	56	43	47	46	nr	8/31	44	45	45	49	47	43
7/2	nr	56	43	50	46	nr	9/1	46	45	45	46	47	43
7/3	nr	56	43	50	46	nr	9/2	47	45	45	46	47	43
7/4	nr	56	43	46	46	nr	9/3	47	45	45	45	47	44
7/5	nr	56	43	47	46	nr	9/4	47	45	45	52	47	44
7/6	nr	56	43	47	45	nr	9/5	47	45	45	46	47	44
7/7	nr	51	43	47	45	nr	9/6	47	45	45	47	47	44
7/8	nr	48	43	46	46	nr	9/7	47	45	45	48	47	44
7/9	nr	48	43	46	48	nr	9/8	47	45	45	48	47	46
7/10	nr	48	43	44	48	nr	9/9	47	45	45	45	47	44
7/11	nr	46	45	49	47	nr	9/10	47	45	45	49	47	44
7/12	nr	48	47	51	47	nr	9/11	47	45	45	47	47	44
7/13	nr	52	47	51	47	nr	9/12	47	45	45	45	47	44
7/14	nr	46	48	51	47	nr	9/13	47	45	45	46	47	45
7/15	nr	46	47	51	47	nr	9/14	47	45	45	46	47	45
7/16	nr	46	47	50	46	54	9/15	47	45	45	46	47	45
7/17	nr	46	47	48	48	52	9/16	59	45	45	47	47	45
7/18	nr	46	47	47	48	51	9/17	47	45	45	46	46	44
7/19	nr	46	47	47	48	51	9/18	47	45	45	45	46	44
7/20	nr	45	47	47	48	52	9/19	47	45	45	46	46	44
7/21	nr	46	47	48	48	52	9/20	47	49	45	47	46	43
7/22	nr	47	47	47	48	52	9/21	47	45	45	46	46	43
7/23	nr	47	47	48	48	51	9/22	47	45	45	47	46	44
7/24	nr	47	47	50	47	51	9/23	47	45	45	51	46	44
7/25	nr	47	47	47	47	51	9/24	47	45	45	50	46	44
7/26	nr	47	47	47	47	51	9/25	47	45	45	46	46	43
7/27	nr	47	47	47	47	50	9/26	nr	45	45	46	46	43
7/28	nr	47	47	46	47	51	9/27	58	45	45	46	46	43
7/29	nr	47	47	46	47	51	9/28	53	45	45	45	46	43
7/30	nr	47	47	46	47	52	9/29	47	45	45	45	46	43
7/31	nr	47	47	46	47	52	9/30	47	45	45	49	46	43

APPENDIX G, Table 7. Average daily flows (cfs) at PG&E Centerville Powerhouse discharge for period June 1, through September 30, 1998-2003, USGS gauge #11389775, Latitude 39°47'20", Longitude 121°39'23" NAD27.

DAY	YEAR						DAY	YEAR					
	1998	1999	2000	2001	2002	2003		1998	1999	2000	2001	2002	2003
6/1	174	125	30	148	106	101	8/1	156	109	90	98	92	117
6/2	82	158	30	145	103	102	8/2	165	108	86	99	90	125
6/3	55	118	30	140	74	108	8/3	156	105	84	93	90	127
6/4	149	129	31	137	54	105	8/4	162	102	89	94	86	121
6/5	136	123	0	137	54	102	8/5	165	100	88	92	84	122
6/6	149	118	0	138	101	100	8/6	165	100	90	93	83	117
6/7	111	160	0	139	141	100	8/7	159	102	82	54	80	115
6/8	144	160	61	134	139	101	8/8	162	93	82	58	83	112
6/9	131	158	97	139	137	99	8/9	165	95	83	56	88	115
6/10	131	135	94	139	132	97	8/10	165	97	80	54	91	115
6/11	131	137	103	137	135	97	8/11	165	107	83	55	92	114
6/12	136	138	112	122	133	94	8/12	156	101	80	55	91	111
6/13	131	139	119	120	127	95	8/13	162	100	80	53	96	111
6/14	146	139	122	123	118	97	8/14	165	102	82	53	95	110
6/15	141	137	123	122	120	99	8/15	165	102	78	54	93	112
6/16	144	133	122	120	117	102	8/16	154	98	80	54	93	114
6/17	131	133	63	117	114	104	8/17	159	72	76	54	91	116
6/18	131	140	134	112	119	100	8/18	141	82	78	55	90	116
6/19	156	141	133	110	120	99	8/19	136	101	77	56	86	114
6/20	154	141	136	109	118	100	8/20	165	108	78	52	83	110
6/21	156	139	137	107	116	98	8/21	165	113	71	52	83	117
6/22	154	143	137	108	113	97	8/22	165	116	54	52	85	120
6/23	154	139	135	110	114	97	8/23	136	116	52	62	84	126
6/24	154	137	133	110	114	98	8/24	136	113	75	72	84	124
6/25	154	138	133	107	113	101	8/25	165	102	83	73	86	122
6/26	154	137	133	108	112	106	8/26	165	100	82	72	86	124
6/27	156	139	129	119	108	109	8/27	165	100	81	68	88	117
6/28	156	140	131	117	106	109	8/28	126	100	79	69	87	111
6/29	159	139	120	110	107	107	8/29	124	111	76	70	79	114
6/30	159	138	117	110	108	100	8/30	165	99	78	66	79	116
7/1	156	134	116	110	107	98	8/31	126	98	79	68	83	117
7/2	162	131	115	105	104	97	9/1	131	100	81	77	88	121
7/3	156	140	112	94	96	98	9/2	133	101	91	76	91	120
7/4	162	122	111	108	99	102	9/3	126	101	90	74	87	118
7/5	159	123	106	104	97	105	9/4	128	107	83	72	85	117
7/6	156	121	110	109	98	103	9/5	128	104	84	72	82	113
7/7	156	112	108	106	96	100	9/6	136	106	87	69	81	109
7/8	156	137	108	105	93	113	9/7	128	104	85	71	82	108
7/9	156	114	109	100	102	128	9/8	131	109	80	73	82	110
7/10	156	112	107	97	106	130	9/9	119	107	81	72	79	108
7/11	156	112	106	98	105	132	9/10	116	106	76	69	81	113
7/12	156	127	102	94	104	133	9/11	119	106	78	68	83	108
7/13	154	115	93	96	103	132	9/12	114	107	77	73	84	109
7/14	156	117	98	97	98	130	9/13	111	108	78	72	84	111
7/15	159	116	100	104	88	137	9/14	114	108	79	74	83	112
7/16	46	104	94	101	84	146	9/15	107	101	78	76	86	108
7/17	162	102	94	102	90	147	9/16	97	108	77	74	78	106
7/18	156	103	92	104	92	148	9/17	128	107	77	70	73	99
7/19	156	95	93	98	96	134	9/18	136	106	67	69	56	90
7/20	156	94	92	98	102	131	9/19	136	105	56	68	58	81
7/21	156	95	98	98	95	133	9/20	136	87	56	66	57	84
7/22	156	92	98	101	94	133	9/21	133	58	52	60	59	86
7/23	156	87	98	99	88	131	9/22	131	62	51	53	60	83
7/24	162	85	98	95	90	125	9/23	136	61	51	53	58	81
7/25	159	93	98	100	87	124	9/24	136	61	52	50	60	81
7/26	67	90	98	100	90	119	9/25	138	62	51	49	58	65
7/27	48	100	98	103	94	123	9/26	144	62	51	50	58	57
7/28	156	101	98	97	94	120	9/27	144	33	51	50	58	59
7/29	165	121	94	93	89	123	9/28	146	61	50	50	58	59
7/30	159	124	92	94	92	123	9/29	151	61	49	52	58	57
7/31	165	111	92	98	95	118	9/30	138	60	53	53	56	57

APPENDIX G, Table 8. Average daily flows (cfs) at PG&E Toadtown Canal above Butte Canal for period June 1, through September 30, 1998-2003, USGS gauge #11389800, Latitude 39°53'09", Longitude 121°36'35" NAD27.

DAY	YEAR					DAY	YEAR					
	1998	1999	2000	2001	2002		1998	1999	2000	2001	2002	2003
6/1	106	112	114	91	114	112	8/1	90	66	63	58	49
6/2	116	112	114	92	114	111	8/2	85	65	62	57	49
6/3	108	111	114	90	113	111	8/3	84	62	62	58	48
6/4	111	110	113	92	113	111	8/4	93	59	62	57	48
6/5	118	109	113	98	107	114	8/5	105	58	63	57	48
6/6	115	109	113	94	95	114	8/6	105	58	63	57	48
6/7	79	110	113	89	91	113	8/7	103	59	63	57	48
6/8	87	111	115	84	88	113	8/8	102	58	63	49	47
6/9	104	114	114	81	87	113	8/9	100	58	65	49	47
6/10	102	115	114	79	85	113	8/10	99	61	65	49	46
6/11	95	112	114	77	83	113	8/11	97	71	63	48	45
6/12	94	114	114	75	79	113	8/12	97	67	64	48	46
6/13	95	113	113	74	76	112	8/13	95	66	62	48	50
6/14	96	113	99	74	74	112	8/14	94	65	63	48	50
6/15	105	113	92	72	72	113	8/15	93	65	62	45	50
6/16	110	113	87	70	69	112	8/16	91	65	62	45	49
6/17	113	113	83	66	67	112	8/17	91	64	61	45	49
6/18	112	114	81	64	66	110	8/18	69	64	60	44	48
6/19	112	114	80	64	64	111	8/19	58	63	62	44	48
6/20	112	114	89	62	62	113	8/20	57	67	61	44	48
6/21	112	113	88	60	61	112	8/21	63	67	61	44	48
6/22	111	107	87	57	60	110	8/22	63	67	60	44	51
6/23	112	101	86	56	59	108	8/23	63	69	60	44	51
6/24	114	99	83	55	57	109	8/24	62	67	60	44	50
6/25	113	98	81	56	56	99	8/25	62	68	65	44	50
6/26	113	96	78	64	55	104	8/26	61	68	64	43	50
6/27	114	93	76	73	53	101	8/27	60	68	64	43	50
6/28	115	88	72	70	53	97	8/28	60	67	64	43	50
6/29	112	85	71	63	52	99	8/29	59	66	65	43	50
6/30	113	81	73	60	51	103	8/30	58	66	65	43	51
7/1	113	79	72	58	49	97	8/31	61	66	65	43	50
7/2	114	77	72	56	48	93	9/1	74	66	69	43	50
7/3	113	75	70	57	47	89	9/2	72	66	74	43	50
7/4	112	73	53	62	46	86	9/3	71	67	70	42	49
7/5	112	71	52	62	45	83	9/4	71	66	68	42	49
7/6	112	69	51	60	44	81	9/5	73	66	68	42	49
7/7	112	68	52	59	44	79	9/6	74	65	66	42	49
7/8	111	67	51	57	44	77	9/7	73	66	65	41	49
7/9	111	65	50	53	49	72	9/8	70	69	64	41	49
7/10	112	64	49	51	48	75	9/9	58	69	64	41	48
7/11	112	63	53	57	48	87	9/10	57	69	63	41	50
7/12	112	62	52	57	48	86	9/11	56	68	62	42	51
7/13	114	89	50	56	47	86	9/12	56	67	61	42	51
7/14	115	89	50	57	46	84	9/13	55	67	61	41	51
7/15	112	87	50	64	44	82	9/14	54	66	63	41	50
7/16	106	62	64	64	41	81	9/15	54	66	62	42	50
7/17	109	60	63	64	49	79	9/16	56	68	62	41	50
7/18	113	60	64	63	49	75	9/17	79	67	61	41	34
7/19	113	59	61	61	49	59	9/18	79	67	39	40	22
7/20	112	59	55	60	48	58	9/19	80	67	28	40	21
7/21	112	60	58	60	47	57	9/20	79	46	28	40	21
7/22	112	60	52	60	48	56	9/21	79	34	28	32	21
7/23	113	59	50	59	47	55	9/22	79	33	30	27	20
7/24	112	59	50	59	46	55	9/23	81	33	30	26	20
7/25	110	58	51	63	46	53	9/24	87	33	29	26	20
7/26	109	58	64	61	46	51	9/25	88	33	28	36	19
7/27	109	70	64	59	45	50	9/26	97	33	29	30	19
7/28	110	69	63	59	45	49	9/27	93	32	28	28	19
7/29	103	69	61	59	45	48	9/28	91	32	28	27	18
7/30	98	68	56	59	49	58	9/29	89	32	28	27	19
7/31	94	67	58	59	49	58	9/30	87	32	28	26	19

APPENDIX G, Table 9. Average daily flows (cfs) in PG&E Butte Canal for period June 1, through September 30, 1998-2003, Calculated (USGS 11389750 minus 11389800).

DAY	YEAR					DAY	YEAR					
	1998	1999	2000	2001	2002		1998	1999	2000	2001	2002	2003
6/1	-2	60	60	57	58	nr	8/1	78	51	43	40	27
6/2	-19	61	57	58	58	nr	8/2	82	43	43	39	27
6/3	-2	62	57	59	59	nr	8/3	68	50	23	37	27
6/4	15	62	57	59	56	nr	8/4	65	49	42	38	28
6/5	-21	62	58	59	56	nr	8/5	62	49	42	38	27
6/6	60	62	58	59	58	nr	8/6	67	50	42	37	28
6/7	-5	62	58	59	57	nr	8/7	65	50	41	38	27
6/8	19	61	57	58	56	nr	8/8	61	50	42	36	27
6/9	65	59	57	58	57	nr	8/9	62	49	40	35	25
6/10	67	59	57	57	56	nr	8/10	68	51	39	36	26
6/11	74	60	58	57	54	nr	8/11	70	52	41	36	25
6/12	75	58	55	56	54	nr	8/12	70	50	40	36	25
6/13	74	60	55	54	52	nr	8/13	72	50	40	36	25
6/14	73	60	59	57	51	nr	8/14	73	50	38	35	24
6/15	64	59	64	55	51	nr	8/15	74	49	40	37	25
6/16	66	47	65	55	50	nr	8/16	76	48	38	37	25
6/17	56	59	68	54	49	nr	8/17	65	48	35	35	25
6/18	57	58	70	53	49	nr	8/18	98	47	39	37	25
6/19	65	58	64	53	48	nr	8/19	109	47	38	36	25
6/20	57	58	63	52	47	nr	8/20	110	47	39	36	25
6/21	65	59	62	51	46	nr	8/21	104	47	40	36	26
6/22	63	60	63	50	46	nr	8/22	67	46	40	37	26
6/23	60	64	62	50	45	nr	8/23	61	39	39	37	26
6/24	58	66	61	49	46	nr	8/24	104	47	40	38	26
6/25	59	66	63	49	45	nr	8/25	62	46	37	36	27
6/26	59	66	62	53	42	nr	8/26	106	45	38	37	26
6/27	58	67	60	58	42	nr	8/27	107	46	39	35	25
6/28	58	67	58	53	40	nr	8/28	58	46	38	35	26
6/29	60	68	57	55	40	nr	8/29	59	48	37	35	26
6/30	59	68	56	55	40	nr	8/30	109	45	38	35	25
7/1	57	66	56	49	39	nr	8/31	53	45	38	35	26
7/2	58	65	54	49	38	nr	9/1	53	44	39	35	26
7/3	60	64	55	47	37	nr	9/2	55	45	44	35	24
7/4	58	65	68	48	37	nr	9/3	54	44	44	36	26
7/5	57	64	66	46	38	nr	9/4	53	44	42	35	26
7/6	58	63	68	47	37	nr	9/5	54	43	39	35	25
7/7	58	62	66	45	35	nr	9/6	58	44	18	32	26
7/8	57	61	66	47	34	nr	9/7	57	43	10	35	26
7/9	58	62	65	45	35	nr	9/8	55	44	39	35	26
7/10	58	62	64	44	34	nr	9/9	56	43	39	35	26
7/11	58	61	57	45	32	nr	9/10	55	42	38	35	25
7/12	58	60	56	44	31	nr	9/11	57	42	39	35	26
7/13	54	56	48	44	30	nr	9/12	54	41	38	36	25
7/14	46	56	54	42	31	nr	9/13	54	41	37	37	25
7/15	58	55	53	42	30	nr	9/14	55	41	37	36	25
7/16	63	56	38	43	28	nr	9/15	53	32	37	36	26
7/17	55	57	38	42	30	nr	9/16	49	41	37	35	22
7/18	57	56	35	42	30	nr	9/17	55	41	37	35	26
7/19	59	52	37	42	31	nr	9/18	48	41	39	35	24
7/20	62	56	43	42	30	nr	9/19	47	41	36	35	25
7/21	66	56	42	42	27	nr	9/20	54	42	36	35	21
7/22	58	55	47	40	29	nr	9/21	45	39	36	34	19
7/23	57	55	48	41	30	nr	9/22	54	43	38	34	22
7/24	58	50	46	40	29	nr	9/23	46	41	39	35	22
7/25	58	54	46	39	28	nr	9/24	48	40	37	35	22
7/26	61	54	44	40	28	nr	9/25	51	39	37	48	23
7/27	65	52	45	40	28	nr	9/26	43	41	36	40	23
7/28	70	52	46	40	28	nr	9/27	69	42	37	38	23
7/29	77	52	44	36	27	nr	9/28	54	40	36	37	22
7/30	82	51	44	37	27	nr	9/29	49	39	33	37	22
7/31	73	52	42	42	28	nr	9/30	49	39	35	37	25

APPENDIX G, Table 10. Average daily flows (cfs) at USGS gage #11390000 for period June 1, through September 30, 1998-2003, Butte Creek Near Chico.

DAY	YEAR					DAY	YEAR					
	1998	1999	2000	2001	2002		1998	1999	2000	2001	2002	2003
6/1	1260	458	334	222	273	592	8/1	265	188	156	128	121
6/2	1190	465	322	225	268	573	8/2	260	196	159	123	120
6/3	1100	443	318	224	264	565	8/3	255	205	161	122	120
6/4	965	445	314	225	259	552	8/4	250	191	168	122	122
6/5	922	416	310	230	252	547	8/5	248	190	173	122	122
6/6	909	394	300	228	229	527	8/6	245	203	166	124	121
6/7	901	372	295	221	217	507	8/7	243	193	157	122	119
6/8	826	373	321	211	214	496	8/8	240	170	155	117	117
6/9	859	357	311	207	211	481	8/9	238	168	153	117	116
6/10	888	365	301	201	211	464	8/10	235	174	152	117	115
6/11	1070	353	295	200	207	451	8/11	233	196	153	117	113
6/12	940	357	288	199	200	439	8/12	230	186	150	116	112
6/13	885	337	283	197	194	430	8/13	225	181	150	118	117
6/14	834	325	270	196	192	422	8/14	220	177	149	118	117
6/15	793	316	256	192	187	411	8/15	215	176	148	115	117
6/16	769	308	251	189	186	398	8/16	210	173	147	114	115
6/17	675	302	241	185	184	404	8/17	205	168	147	114	115
6/18	664	310	238	178	180	413	8/18	200	174	146	114	115
6/19	645	302	236	178	178	423	8/19	190	168	147	113	115
6/20	635	303	241	175	173	428	8/20	184	171	147	113	116
6/21	615	302	238	167	170	447	8/21	186	172	144	111	116
6/22	595	289	235	159	169	438	8/22	187	171	149	111	120
6/23	580	276	233	154	166	430	8/23	184	174	159	115	120
6/24	570	262	231	151	162	448	8/24	180	172	153	113	120
6/25	560	256	228	152	158	453	8/25	177	169	160	110	120
6/26	545	262	224	168	154	479	8/26	176	169	160	109	120
6/27	525	266	219	191	154	511	8/27	171	170	162	107	119
6/28	505	255	215	196	152	540	8/28	168	170	164	109	118
6/29	490	236	209	170	150	545	8/29	166	166	166	109	118
6/30	475	233	213	157	148	603	8/30	170	166	166	110	119
7/1	465	229	208	151	142	405	8/31	177	168	166	109	118
7/2	455	218	205	145	139	202	9/1	190	167	173	109	117
7/3	445	206	202	141	135	196	9/2	189	168	198	109	115
7/4	435	207	199	148	134	191	9/3	184	168	196	105	115
7/5	425	219	192	145	133	185	9/4	182	167	183	105	115
7/6	415	230	192	143	130	183	9/5	187	164	183	107	116
7/7	405	224	189	139	127	179	9/6	193	164	180	109	117
7/8	400	209	187	137	126	173	9/7	189	163	176	108	118
7/9	395	206	183	132	131	165	9/8	186	168	170	106	119
7/10	390	200	178	126	129	161	9/9	173	167	167	106	117
7/11	385	195	175	133	126	175	9/10	171	169	165	106	116
7/12	375	194	170	134	124	174	9/11	159	166	164	109	119
7/13	370	223	167	134	123	171	9/12	161	164	161	112	118
7/14	360	228	165	131	121	171	9/13	170	164	160	111	118
7/15	355	226	162	138	119	173	9/14	162	163	163	110	117
7/16	350	199	161	141	112	164	9/15	156	161	164	108	117
7/17	345	187	160	142	122	158	9/16	153	164	163	107	118
7/18	340	179	154	139	123	155	9/17	174	164	161	107	109
7/19	335	173	150	134	125	139	9/18	178	163	142	106	85
7/20	330	175	149	131	126	134	9/19	180	166	113	103	82
7/21	325	182	150	130	125	133	9/20	179	147	110	104	81
7/22	315	180	149	130	126	129	9/21	180	124	109	97	75
7/23	310	179	148	127	123	127	9/22	180	124	118	87	77
7/24	305	174	145	124	122	128	9/23	181	121	121	87	77
7/25	300	180	145	128	121	128	9/24	190	121	116	88	74
7/26	295	174	157	127	120	123	9/25	191	119	114	120	76
7/27	290	179	162	123	119	121	9/26	217	120	113	107	78
7/28	285	186	161	124	118	120	9/27	212	121	112	94	80
7/29	280	186	157	120	117	120	9/28	211	118	111	91	80
7/30	275	186	149	120	121	126	9/29	201	117	113	89	78
7/31	270	189	147	127	122	130	9/30	198	117	111	87	84